



Terminal Compliance Matrix

Version 15.0
February 15, 2010

TSYS Acquiring Solutions® Class A applications and PIN Entry Device (PED) overview

The TSYS Acquiring Solutions Class A applications matrix provides a summary of the TSYS Acquiring Solutions Class A applications that support recent enhancements which will enable your merchants to be compliant with operational and interchange mandates.

This matrix also includes information about our support for Payment Card Industry (PCI)-compliant Personal Identification Number (PIN) entry devices. Clients should use this information to ensure they are using only PCI-compliant PIN entry devices by July 1, 2010, to meet card brand mandates.

For both the Class A applications' pages and the PED page, the currently supported applications and PEDs are listed under the yellow table headings; the new replacement applications and PEDs are listed under the green table headings.

Revision history

This version of the compliance matrix has several changes from version 14.0, which was released on December 1, 2009. The changes are reflected below, and should help you make a more informed decision about which terminal types and applications best fit your future plans.

| Section | Table number | Revision(s) |
|----------------------|--------------|--|
| Hypercom® | 5 | <ul style="list-style-type: none"> The FD application, which was retired on January 31, 2010, has been added to the Retirement table. It will also remain on this active application table until the new RR/DRR replacement application is available. Applications that were retired on October 31, 2009, have been removed from this table. |
| Nurit | 6 | Applications that were retired on October 31, 2009, have been removed from this table. |
| Omni™ | 7 | <ul style="list-style-type: none"> The new version of application VSVR046 became available on January 28, 2010. This updated version supports all of the features listed on the matrix except Discover Cash Over. Applications that were retired on October 31, 2009, have been removed from this table. |
| Zon Jr / XL300 | 9 | Applications that were retired on October 31, 2009, have been removed from this table. |
| Ingenico / Datacard | 10 | Applications that were retired on October 31, 2009, have been removed from this table. |
| Thales | n/a | The Thales table has been removed from the matrix. TSYS Acquiring retired all Thales terminals and applications in 2008. |
| PCI PED Hardware | 11 | This table is renumbered to table 11 (from table 12) with the removal of the Thales table. |
| Retired applications | 12 | This table is renumbered to table 12 (from table 13) with the removal of the Thales table. |

Table 1 Changes from prior matrix version

Class A applications

Tables 5-10 in this document provide a summary of the TSYS Acquiring Solutions Class A applications that support the new enhancements which will enable your merchants to be compliant with operational and interchange mandates, including support for partial approval, full and partial reversals, balance inquiry and balance response, Discover “Cash Over,” and the ability to store all major card brand card ranges. These tables will allow you to determine the most appropriate application for your merchants to comply with the latest enhancements and mandates.

For Class A applications, where the current application and replacement application names are the same, the new version is indicated in the “Recommended compliant replacement” column. In addition, the current application name may have a “download after [date]” indicated. If the application was downloaded on or after that date, the application is current with the features under the yellow headings, and may be compliant with the features under the green heading if so indicated by the “Recommended Compliant Replacement” column notes. If the application was last downloaded prior to the “download after” date, the application is retired and should be updated to the current version.

Table 2 below explains how to interpret the information provided in tables 5-11.

| Column number and name | Column identified |
|--|--|
| Column 1: Terminal model | The device type of the terminal. |
| Column 2: Current application name | The application name in Express Merchant Boarding and Maintenance or in Merchant Management System (MMS). |
| Column 3: Platform | This column indicates if the application is terminal capture or host capture. <i>Note: This column is added to all tables for consistency purposes. It does not mean the vendor currently has or is developing host capture applications.</i> |
| Column 4: Supports merchant receipt truncation | Indicates if the current application is capable of supporting the feature identified in the column heading. |
| Column 5: Supports ALPC | |
| Column 6: Recommended compliant replacement | Indicates the replacement application that is needed to support the compliance features in columns 7 through 11. |
| Column 7: Download required | Identifies the type of download required to enable the recommended replacement application. |

| Column number and name | Column identified |
|---|---|
| Column 8: Supports partial approval | Indicates if the recommended replacement application supports the features identified in these column headings. |
| Column 9: Supports full and partial authorization reversals. | |
| Column 10: Supports balance inquiry and unsolicited receipt of the available balance | |
| Column 11: Supports Discover “Cash Over” feature, allowing cardholder to obtain cash in addition to a purchased item. | |
| Column 12: Supports storing of all card brand card account ranges in the application. | |
| Column 13: Targeted available date. | The anticipated date when the replacement application will be available. <i>Note: The targeted available dates reflected in the table are anticipated dates. TSYS Acquiring Solutions will publish Product Announcements when the replacement devices are available for use.</i> |

Table 2 Class A application column descriptors

PCI compliant PEDs

Table 11 in this document identifies the different PEDs supported by TSYS Acquiring Solutions, and their PCI compliant replacement. This table identifies both integrated devices (terminals with built in PIN Pads) and external PIN Pads. Table 3 below explains how to interpret the information provided in table 12.

| Column number and name | Column identified |
|---|---|
| Column 1: Current product name | The name of the integrated terminal or external PIN Pad currently supported. |
| Column 2: Model number | The model number of the integrated terminal or external PIN Pad currently supported. |
| Column 3: PCI PED | Indicates if the PED complies with current PCI security standards. |
| Column 4: Accepts PCI compliant PIN Pad | This column identifies the PCI compliant external PIN Pad that can be used with the integrated terminal as an alternative to replacing a current non-compliant integrated terminal. |
| Column 5: Recommended Integrated PCI replacement | Identifies the recommended integrated replacement terminal that is PCI compliant. |
| Column 6: Integrated PCI replacement model number | The manufacturer’s model number of the PCI compliant integrated replacement device. |

| Column number and name | Column identified |
|---------------------------------|--|
| Column 7: Targeted Availability | The anticipated date when the recommended PCI compliant PED replacement will be available. <i>Note: The targeted availability dates reflected in the table are anticipated dates. TSYS Acquiring Solutions will publish Product Announcements when the replacement devices are available for use.</i> |

Table 3 PCI PED column descriptors

TSYS Acquiring Solutions currently supports VeriFone® and Hypercom external PIN pads. The VeriFone and Hypercom sections of the table list the manufacturer's integrated terminals first, with the external PIN Pads following the listing of integrated devices.

Note: To comply with PCI PED security standards, it is acceptable to use a PCI compliant external PIN Pad with a non-compliant integrated terminal, providing the devices are compatible and the integrated terminal can be programmed to use the external PIN Pad instead of the internal PIN Pad for capturing cardholder PINs. TSYS Acquiring Solutions Class A terminals do allow the use of a compatible external PIN Pad if it is listed in this document.

Retired applications

This table lists all of the retired applications that TSYS Acquiring Solutions has announced over the past several years, and their current replacement applications. This information is designed to enable clients to easily identify applications that are no longer supported in our suite of class A terminals. Table 4 below explains how to interpret the information in table 12.

| Column number and name | Column identified |
|--|--|
| Column 1: Terminal Type | Identifies the hardware device for the application. |
| Column 2: Retired Application | Identifies the retired application. |
| Column 3: Retirement Date | This is the date the application was retired. Where "If downloaded prior to..." is noted, it means the version of the application downloaded before that date is now retired, but a current version with the same application name is available. |
| Column 4: Replacement Application | This is the current application that replaces the retired application. |
| Column 5: Replacement Application Available Date | This column will indicate "available now" except in the rare instance where an application is retired before its designated replacement is available. In this case, the targeted date for the replacement application is identified. If the column is blank, there is no replacement application available for the retired application. |

| Column number and name | Column identified |
|------------------------|---|
| Column 6: Comments | This column provides additional information about the application or the terminal device. |

Table 4 Retired applications column descriptors

Note: The Retired Applications section is not intended to identify specific compliance features or enhancements in the applications. For information about compliance features in the replacement applications, please refer to tables 5 through 11.

Please note the following items regarding retired applications:

- Retired applications must be replaced with the currently supported or recommended replacement to ensure compliance with the Federal law regarding cardholder receipt truncation, or possible state laws regarding merchant receipt truncation, or other card brand mandates.
- Retired applications can not be downloaded.

TSYS Acquiring Solutions® Terminal Compliance Matrix
Hypercom

| Terminal model | Current application name | Platform | Supports merchant receipt truncation | Supports ALPC | Recommended compliant replacement | Download type required | Supports Partial Approval | Supports Reversals (full & partial) | Supports Balance Inquiry & Response | Supports Discover Cash-Over | Supports all card ranges | Targeted available date |
|--------------------------------|--|------------------|--------------------------------------|---------------|---|------------------------|---------------------------|-------------------------------------|-------------------------------------|-----------------------------|--------------------------|-------------------------|
| T77 / T7E / T7P / T7Plus / T8 | RR / DRR (Download after 11/14/2007) | Terminal Capture | Yes | Yes | RR / DRR (new version) | Full Download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| T77 / T7E / T7P | FD (Retiring 01/31/10) | Terminal Capture | Yes | No | RR / DRR (new version) | Full Download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| T77 / T7P / T7Plus (with 512k) | HTL / DHTL (Download after 11/04/2008) | Terminal Capture | Yes | Yes | HTL / DHTL (new version with 512k terminal) | Full Download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| T7Plus | T7DCCRR (Download after 09/08/2008) | Terminal Capture | Yes | Yes | T7DCCRR (new version) | Full Download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| T7P / T7Plus (with 512k) | SPOS* (Download after 02/25/2008) | Terminal Capture | Yes | Yes | RR / DRR (new version) | Full Download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| T42XX / M4230 | SPOS32* | Terminal Capture | Yes | Yes | SPOS32* (new version) | Full Download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| T7P/T7Plus | | Host Capture | | | HCT7 (New application) | Full Download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |

* Application supports American Express Split-Dial

TSYS Acquiring Solutions® Terminal Compliance Matrix

Nurit

Note: A NOS upgrade to version 7.47 is required for all terminals using wireless or IP/SSL connections.

| Terminal model | Current application name | Platform | Supports merchant receipt truncation | Supports ALPC | Recommended compliant replacement | Download type required | Supports Partial Approval | Supports Reversals (full and partial) | Supports Balance Inquiry & Response | Supports Discover Cash-Over | Supports all card ranges | Targeted available date |
|---|--------------------------|------------------|--------------------------------------|---------------|-----------------------------------|------------------------|---------------------------|---------------------------------------|-------------------------------------|-----------------------------|--------------------------|-------------------------|
| 2085 / 2085+ / 3010 / 3020 / 8100 / 8320 / 8400 / 8400L | MDNRRTL* single-merchant | Terminal Capture | Yes | Yes | MDNRRTL (new version) | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 2085 / 2085+ / 3010 / 3020 / 8100 / 8320 / 8400 / 8400L | MNURRTL* single-merchant | Terminal Capture | Yes | Yes | MNURRTL (new version) | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 2085 / 2085+ / 3010 / 3020 / 8100 / 8320 / 8400 / 8400L | MDNRRST* single-merchant | Terminal Capture | Yes | Yes | MDNRRST (new version) | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 2085 / 2085+ / 3010 / 3020 / 8100 / 8320 / 8400 / 8400L | MNURRST* single-merchant | Terminal Capture | Yes | Yes | MNURRST (new version) | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 8000 / 8000 Secure / 8020 | MDNRRTL single-merchant | Terminal Capture | Yes | Yes | MDNRRTL (new version) | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 8000 / 8000 Secure / 8020 | MNURRTL single-merchant | Terminal Capture | Yes | Yes | MNURRTL (new version) | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 8000 / 8000 Secure / 8020 | MDNRRST single-merchant | Terminal Capture | Yes | Yes | MDNRRST (new version) | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 8000 / 8000 Secure / 8020 | MNURRST single-merchant | Terminal Capture | Yes | Yes | MNURRST (new version) | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 2085 / 2085+ / 3010 / 3020 / 8100 / 8320 / 8400 / 8400L | MDNRRTL* multi-merchant | Terminal Capture | Yes | Yes | MDNRRTL (new version) | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 2085 / 2085+ / 3010 / 3020 / 8100 / 8320 / 8400 / 8400L | MNURRTL* multi-merchant | Terminal Capture | Yes | Yes | MNURRTL (new version) | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 2085 / 2085+ / 3010 / 3020 / 8100 / 8320 / 8400 / 8400L | MDNRRST* multi-merchant | Terminal Capture | Yes | Yes | MDNRRST (new version) | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 2085 / 2085+ / 3010 / 3020 / 8100 / 8320 / 8400 / 8400L | MNURRST* multi-merchant | Terminal Capture | Yes | Yes | MNURRST (new version) | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |

* Application supports American Express Split Dial

TSYS Acquiring Solutions® Terminal Compliance Matrix
Omni

| Terminal model | Current application name | Platform | Supports merchant receipt truncation | ALPC support | Recommended compliant replacement | Download type required | Supports Partial Approval | Supports Reversals (full or partial) | Supports Balance Inquiry & Response | Supports Discover Cash-Over | Supports all card ranges | Targeted available date |
|---|-----------------------------------|------------------|--------------------------------------|--------------|---|------------------------|---------------------------|--------------------------------------|-------------------------------------|-----------------------------|--------------------------|-------------------------|
| 3740 / 3750 single merchant | UEVA291 (Retiring 10/31/10) | Terminal Capture | No | No | UEVA320* | Full download | Yes | Yes | Yes | Yes | Yes | 1st Qtr 2010 |
| 3740 / 3750 single merchant | UEVA300* | Terminal Capture | No | Yes | UEVA320* | Full download | Yes | Yes | Yes | Yes | Yes | 1st Qtr 2010 |
| 3740 / 3750 multi-merchant | UEVA291 (Retiring 10/31/10) | Terminal Capture | Yes | No | UEVA320* | Full download | Yes | Yes | Yes | Yes | Yes | 1st Qtr 2010 |
| 3740 / 3750 multi-merchant | UEVA300* | Terminal Capture | Yes | Yes | UEVA320* | Full download | Yes | Yes | Yes | Yes | Yes | 1st Qtr 2010 |
| 3730 / 3730LE / Vx510 / Vx510LE / Vx570 single merchant | SEVA291 (Retiring 10/31/10) | Terminal Capture | No | No | SEVA320* | Full download | Yes | Yes | Yes | Yes | Yes | 1st Qtr 2010 |
| 3730 / 3730LE / Vx510 / Vx510LE / Vx570 / Vx610 / Vx670 single merchant | SEVA300* | Terminal Capture | No | Yes | SEVA320* | Full download | Yes | Yes | Yes | Yes | Yes | 1st Qtr 2010 |
| 3730 / 3730LE / Vx510 / Vx510LE / Vx570 multi-merchant | SEVA291 (Retiring 10/31/10) | Terminal Capture | Yes | No | SEVA320* | Full download | Yes | Yes | Yes | Yes | Yes | 1st Qtr 2010 |
| 3730 / 3730LE / Vx510 / Vx510LE / Vx570 multi-merchant | SEVA300* | Terminal Capture | Yes | Yes | SEVA320* | Full download | Yes | Yes | Yes | Yes | Yes | 1st Qtr 2010 |
| 395 / 396 / 470 / 3200 / 3210 | VSVR035 (Retired 10/31/09) | Terminal Capture | No | No | VSVR046 (new application version, 396/3200 series only) | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 396 / 3200 / 3200SE / 3210 / 3210SE | VSVR046 (download after 01/28/10) | Terminal Capture | Yes | Yes | VSVR046 (current version) | Full download | Yes | Yes | Yes | No | Yes | Available now |

TSYS Acquiring Solutions® Terminal Compliance Matrix
Omni

| Terminal model | Current application name | Platform | Supports merchant receipt truncation | ALPC support | Recommended compliant replacement | Download type required | Supports Partial Approval | Supports Reversals (full or partial) | Supports Balance Inquiry & Response | Supports Discover Cash-Over | Supports all card ranges | Targeted available date |
|---|--------------------------|--------------|--------------------------------------|--------------|-----------------------------------|------------------------|---------------------------|--------------------------------------|-------------------------------------|-----------------------------|--------------------------|-------------------------|
| 3740 / 3750 single merchant | HC37XX | Host Capture | Yes | Yes | HC37XX (New application version) | Full download | Yes | Yes | Yes | Yes | Yes | 1st Qtr 2010 |
| Vx510 / Vx510LE / Vx570 / Vx610 / Vx670 single merchant | HCVX | Host Capture | Yes | Yes | HCVX (New application version) | Full download | Yes | Yes | Yes | Yes | Yes | 1st Qtr 2010 |
| * Application supports American Express Split Dial | | | | | | | | | | | | |
| <p>Note: OMNI 3300 and OMNI 3350 terminals were retired on October 19, 2008. Clients using these terminal types should obtain another terminal device capable of using our current applications. For more information, please refer to the September 19, 2008, Information Bulletin, No 08, Volume EMS08, titled <i>Update: 2008 Enhancements for POS Terminals and Class A Applications</i>.</p> <p>Verifone 395 and 470 terminal models were retired on 10/31/2009. Merchants using these devices should obtain another supported device capable of using our current applications. For more information, refer to the July 31, 2009 Information Bulletin, No 03, Volume EMS09, titled: <i>Update: Scheduled retirement for POS Terminals and Class A Applications</i>.</p> | | | | | | | | | | | | |

TSYS Acquiring Solutions® Terminal Compliance Matrix
Tranz

| Terminal model | Current application name | Platform | Supports merchant receipt truncation | Supports ALPC | Recommended compliant replacement | Download type required | Supports Partial Approval | Supports Reversals (full & partial) | Supports Balance Inquiry & Response | Supports Discover Cash-Over | Supports all Card Ranges | Targeted available date |
|----------------|--|------------------|--------------------------------------|---------------|-----------------------------------|------------------------|---------------------------|-------------------------------------|-------------------------------------|-----------------------------|--------------------------|-------------------------|
| 460 | VT46DA4 (download after 10/31/2007) | Terminal Capture | Yes | Yes | TSYS01 - new application | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 380 | VT13DA9 (download after 11/09/2007) | Terminal Capture | Yes | Yes | TSYS01 - new application | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 380 | VT1H386 (Download after 11/14/2007) | Terminal Capture | Yes | Yes | VT1H386 (new version) | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 380 | VT13QC1 (Download after 01/20/2008) | Terminal Capture | Yes | Yes | New application - TSYS01 | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 330 | VT1TP08 (Download after 08/17/2007) | Terminal Capture | Yes | Yes | TSYS01 - new application | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 330 | VT1TPA7 (Download after 08/17/2007) | Terminal Capture | Yes | Yes | TSYS01 - new application | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 330 | VT1TPH6 (Download after 10/07/2009) | Terminal Capture | Yes | Yes | VT1TPH6 (current version) | Full download | Yes | Yes | Yes | No | Yes | Available now |
| 330 | VT1CD02 (Download after 10/31/2007) | Terminal Capture | Yes | Yes | TSYS01 - new application | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 330 Track I | VT1DB01 (Download after 11/14/2007) | Terminal Capture | Yes | Yes | TSYS01 - new application | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 330 Track II | VSTDB01 (Download after 11/14/2007) | Terminal Capture | Yes | Yes | TSYS01 - new application | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 330 Track I | HCT330 | Host Capture | Yes | Yes | HCT330 (New application version) | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 330 Track II | HCT330 | Host Capture | Yes | Yes | HCT330 (New application version) | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |

TSYS Acquiring Solutions® Terminal Compliance Matrix
Tranz

| Terminal model | Current application name | Platform | Supports merchant receipt truncation | Supports ALPC | Recommended compliant replacement | Download type required | Supports Partial Approval | Supports Reversals (full & partial) | Supports Balance Inquiry & Response | Supports Discover Cash-Over | Supports all Card Ranges | Targeted available date |
|--|--------------------------|--------------|--------------------------------------|---------------|-----------------------------------|------------------------|---------------------------|-------------------------------------|-------------------------------------|-----------------------------|--------------------------|-------------------------|
| 380 | | Host Capture | | | HCTRANZ (New application) | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| 460 | | Host Capture | | | HCTRANZ (New application) | Full download | Yes | Yes | Yes | No | Yes | 1st Qtr 2010 |
| * Application supports American Express Split Dial | | | | | | | | | | | | |

TSYS Acquiring Solutions® Terminal Compliance Matrix
Zon Jr XL300

| Terminal model | Current application name | Platform | Supports merchant receipt truncation | ALPC support | Recommended compliant replacement | Download type required | Supports Partial Approval | Supports Reversals (full & partial) | Supports Balance Inquiry & Response | Supports Discover Cash-Over | Supports all Card Ranges | Targeted available date |
|--|--------------------------|------------------|--------------------------------------|--------------|-----------------------------------|------------------------|--|-------------------------------------|-------------------------------------|-----------------------------|--------------------------|-------------------------|
| Zon Jr XL / XL 300 | VXP0P17 | Terminal capture | No | No | New terminal and application | Full download | Dependent on terminal and application selected | | | | N/A | |
| * Application supports Amercian Express Split Dial | | | | | | | | | | | | |

TSYS Acquiring Solutions® Terminal Compliance Matrix
 Ingenico - DataCard

| Terminal model | Current application name | Platform | Supports merchant receipt truncation | ALPC support | Recommended compliant replacement | Download type required | Supports Partial Approval | Supports Reversals (full & partial) | Supports Balance Inquiry & Response | Supports Discover Cash-Over | Supports all Card Ranges | Targeted available date |
|--|--------------------------|----------|--------------------------------------|--------------|-----------------------------------|------------------------|--|-------------------------------------|-------------------------------------|-----------------------------|--------------------------|-------------------------|
| Ingenico terminals are not currently supported | N/A | | | | New terminal and application. | Full download | Dependent on terminal and application selected | | | | | N/A |
| DataCard terminals are not currently supported | N/A | | | | New terminal and application. | Full download | Dependent on terminal and application selected | | | | | N/A |

* Application supports Amercian Express Split Dial

TSYS Acquiring Solutions® Terminal Compliance Matrix
PCI PED Hardware

| Current Product Name | Model Number | PCI PED? | PCI-Compliant Peripheral PIN Pad | Recommended Integrated PCI Replacement | Integrated PCI Replacement Model Number | Targeted Availability |
|---|--------------|----------|--|--|---|-----------------------|
| VeriFone Terminals | | | | | | |
| NURIT 2085-03, Dial | any model | N | Verifone PCI 1000SE or the Hypercom PV1310 | NURIT 8400-M11 | 8400-US-M11-BLU (dial) | Currently Available |
| NURIT 2085-04, Dial, with PIN Pad | any model | N | Verifone PCI 1000SE or the Hypercom PV1310 | NURIT 8400-M11 | 8400-US-M11-BLU (dial) | Currently Available |
| NURIT 3010-10 Mobitex | any model | N | Verifone PCI 1000SE or the Hypercom PV1310 | NURIT 8020-M11 (GPRS) | 8020-US-M11-BLU (GPRS) | Currently Available |
| NURIT 3010-12 Motient | any model | N | Verifone PCI 1000SE or the Hypercom PV1310 | NURIT 8020-M11 (GPRS) | 8020-US-M11-BLU (GPRS) | Currently Available |
| NURIT 3020-22 Dial | any model | N | Verifone PCI 1000SE or the Hypercom PV1310 | NURIT 8400-M11 | 8400-US-M11-BLU (dial) | Currently Available |
| NURIT 8000-01 Mobitex | any model | N | Verifone PCI 1000SE or the Hypercom PV1310 | 8020-M11 (GPRS) | 8020-US-M11-BLU (GPRS) | Currently Available |
| NURIT 8000-03 Motient | any model | N | Verifone PCI 1000SE or the Hypercom PV1310 | 8020-M11 (GPRS) | 8020-US-M11-BLU (GPRS) | Currently Available |
| NURIT 8010-M11 (GPRS) | any model | N | Verifone PCI 1000SE or the Hypercom PV1310 | 8020-M11 (GPRS) | 8020-US-M11-BLU (GPRS) | Currently Available |
| NURIT 8010-Mxx (Mobitex) | any model | N | Verifone PCI 1000SE or the Hypercom PV1310 | 8020-M11 (GPRS) | 8020-US-M11-BLU (GPRS) | Currently Available |
| NURIT 8010-M12 (Motient) | any model | N | Verifone PCI 1000SE or the Hypercom PV1310 | 8020-M11 (GPRS) | 8020-US-M11-BLU (GPRS) | Currently Available |
| NURIT 8100-11(Ethernet/Dial) | any model | N | Verifone PCI 1000SE or the Hypercom PV1310 | 8400-M43 | 8400-US-M43-BLU (Eth) | Currently Available |
| NURIT 8320-M11 (Multi App) | any model | N | Verifone PCI 1000SE or the Hypercom PV1310 | 8400-M43 | 8400-US-M43-BLU (Eth) | Currently Available |
| NURIT 8320-M12 (Multi App & Smart Card) | any model | N | Verifone PCI 1000SE or the Hypercom PV1310 | 8400-M43 | 8400-US-M43-BLU (Eth) | Currently Available |
| NURIT 8320-M13 (Multi App & SC & UPS) | any model | N | Verifone PCI 1000SE or the Hypercom PV1310 | 8400-M43 | 8400-US-M43-BLU (Eth) | Currently Available |
| NURIT 8320-M43 (Dual Comm) | any model | N | Verifone PCI 1000SE or the Hypercom PV1310 | 8400-M43 | 8400-US-M43-BLU (Eth) | Currently Available |
| Omni 3730, 2MF/1M 14.4K PP | any model | N | VeriFone PCI PP1000SE, or Hypercom PV1310 | Vx510 | M251-000-33-NAA | Currently Available |
| Omni 3730LE, 2MF/1M14.4K PPLE | any model | N | VeriFone PCI PP1000SE, or Hypercom PV1310 | Vx510LE | M251-000-33-NAB | Currently Available |
| Omni 3740,US1 IPP/2MF/2M HS | any model | N | VeriFone PCI PP1000SE, or Hypercom PV1310 | Vx570 | M257-000-02-NAA, dial only | Currently Available |

TSYS Acquiring Solutions® Terminal Compliance Matrix
PCI PED Hardware

| Current Product Name | Model Number | PCI PED? | PCI-Compliant Peripheral PIN Pad | Recommended Integrated PCI Replacement | Integrated PCI Replacement Model Number | Targeted Availability |
|---------------------------------|-----------------------------------|----------|---|--|--|-----------------------|
| Omni 3740,US1 IPP/2MF/2M HS10BT | any model | N | VeriFone PCI PP1000SE, or Hypercom PV1310 | Vx570 | M257-050-02-NAA | Currently Available |
| Omni 3750,US1 2MF/2M HS with SC | any model | N | VeriFone PCI PP1000SE, or Hypercom PV1310 | Vx570 | M257-503-02-NAA, dial only with smart card | Currently Available |
| Omni 3750,CA1 2MF/2M HS10BT | any model | N | VeriFone PCI PP1000SE, or Hypercom PV1310 | Vx570 | M257-556-02-NAA | Currently Available |
| Vx510,2MF/1M 14.4k PP | M251-000-03-NA1 | N | VeriFone PCI PP1000SE, or Hypercom PV1310 | Vx510 | M251-000-33-NAA | Currently Available |
| Vx510, 2MF/1M 14.4k PPLE | M251-000-03-NA2 | N | VeriFone PCI PP1000SE, or Hypercom PV1310 | Vx510LE | M251-000-33-NAB | Currently Available |
| Vx510 | M251-000-33-NAA | Y | VeriFone PCI PP1000SE, or Hypercom PV1310 | | | |
| Vx510LE | M251-000-33-NAB | Y | VeriFone PCI PP1000SE, or Hypercom PV1310 | | | |
| Vx570 | M257-000-02-NAA | Y | VeriFone PCI PP1000SE, or Hypercom PV1310 | | | |
| Vx570 | M257-050-02-NAA | Y | VeriFone PCI PP1000SE, or Hypercom PV1310 | | | |
| Vx570 | M257-503-02-NAA | Y | VeriFone PCI PP1000SE, or Hypercom PV1310 | | | |
| Vx570 | M257-556-02-NAA | Y | VeriFone PCI PP1000SE, or Hypercom PV1310 | | | |
| VeriFone PIN Pads | | | | | | |
| PINpad 1000SE | P003-170-02 (P003-160-02 non PED) | N | | PP 1000SE | P003-180-02 | Currently Available |
| NURIT 222 PIN Pad | 0222-US-M11-GRY | N | | PP 1000SE | P003-180-02 | Currently Available |
| NURIT 292 PIN Pad | 0292-US-M11-GRY | N | | PP 1000SE | P003-180-03 | Currently Available |

TSYS Acquiring Solutions® Terminal Compliance Matrix
 PCI PED Hardware

| Current Product Name | Model Number | PCI PED? | PCI-Compliant Peripheral PIN Pad | Recommended Integrated PCI Replacement | Integrated PCI Replacement Model Number | Targeted Availability |
|----------------------|--------------|----------|----------------------------------|--|---|-----------------------|
|----------------------|--------------|----------|----------------------------------|--|---|-----------------------|

Hypercom Terminals

| | | | | | | |
|-------------------------------|-----------|---|-----------------------|--------------------------------------|--|---------------------|
| T77 (no internal PIN pad) | any model | N | Hypercom P1300, S9PCI | T4205 and T4210 (dial) T4220 (IP) | T4210 = 010332-311R T4220 = 010332-306R | Currently Available |
| T7E (no internal PIN pad) | any model | N | Hypercom P1300, S9PCI | T4205 and T4210 (dial) T4220 (IP) | T4210 = 010332-311R T4220 = 010332-306R | Currently Available |
| T7P (no internal PIN pad) | any model | N | Hypercom P1300, S9PCI | T4205 and T4210 (dial) T4220 (IP) | T4210 = 010332-311R T4220 = 010332-306R | Currently Available |
| T7 Plus (no internal PIN pad) | any model | N | Hypercom P1300, S9PCI | T4205 and T4210 (dial) T4220 (IP) | T4210 = 010332-311R T4220 = 010332-306R | Currently Available |
| T8 (no internal PIN pad) | any model | N | Hypercom P1300, S9PCI | T4205 and T4210 (dial) T4220 (IP) | T4210 = 010332-311R T4220 = 010332-306R | Currently Available |
| ICE5500 | any model | N | Hypercom P1300, S9PCI | T4205 and T4210 (dial) T4220 (IP) | T4210 = 010332-311R T4220 = 010332-306R | Currently Available |
| ICE5500PLUS | any model | N | Hypercom P1300, S9PCI | T4205 and T4210 (dial) T4220 (IP) | T4210 = 010332-311R T4220 = 010332-306R | Currently Available |

Hypercom PIN Pads

| | | | | | | |
|-----------------|-------------|---|---|---------------|----------------------|---------------------|
| PIN Pad S8 | any model | N | 6 | PIN Pad P1300 | P1300-010248-001 | Currently Available |
| | | | | S9PCI | PP S9PCI-010340-003R | Currently Available |
| PIN Pad S9 | any model | N | 6 | PIN Pad P1300 | P1300-010248-001 | Currently Available |
| | | | | S9PCI | PP S9PCI-010340-003R | Currently Available |
| PIN Pad P1300 | 010248-001 | Y | | | | |
| Hypercom PV1310 | 010248-010 | Y | | | | |
| S9PCI | 010340-003R | Y | | | | |

TSYS Acquiring Solutions® Terminal Compliance Matrix
Retired Applications

| Terminal Type | Retired Application | Retirement Date | Replacement Application | Replacement Application Available Date | Comments |
|--|---------------------------------|-----------------------------------|-------------------------|--|---|
| HYPERCOM RETIRED APPLICATIONS | | | | | |
| CNTR CASHIER FD | CCF | 10/23/2006 | N/A | | New terminal type and application required. |
| CNTR CASHIER RR | CCRR | 10/23/2006 | N/A | | New terminal type and application required. |
| CNTR CASHIER RR | DCCRR | 10/23/2006 | N/A | | New terminal type and application required. |
| STACK M | SM | 10/23/2006 | N/A | | New terminal type and application required. |
| T7P w/CCFD | CCF | 10/23/2006 | N/A | | New terminal type and application required. |
| T7P w/CCRR | CCRR | 10/23/2006 | N/A | | New terminal type and application required. |
| T7P w/CCRR | DCCRR | 10/23/2006 | N/A | | New terminal type and application required. |
| T7P w/STACK M | SM | 10/23/2006 | N/A | | New terminal type and application required. |
| T7 / T7Plus | RR / DRR | If downloaded prior to 11/14/2007 | RR / DRR | Available now | New application version with same name |
| T7 / T7Plus | RRB / DRRB | 08/26/2006 | SPOS | Available now | |
| T7 / T7Plus | RRS / DRRS | 08/26/2006 | SPOS | Available now | |
| T7 / T7Plus | SPOS | If downloaded prior to 02/25/2008 | SPOS | Available now | New application version with same name |
| ICE 5000 | DICE / ICE | 07/21/2006 | N/A | | New terminal type and application required. |
| T77 / T7E / T7P / T8 | RRMM / DRRMM / RRMM-M / DRRMM-M | 10/31/2009 | SPOS32 | Available now | SPOS32 requires a T42xx, M4230 terminal. |
| T77 / T7E / T7P / T7Plus / T8 | DRR512K / RR512K | 10/31/09 | RR / DRR | Available now | |
| T77 / T7E / T7P | FD | 01/31/10 | RR / DRR (new version) | 1st Qtr 2010 | |
| ICE 5500, ICE 5500 Plus | ICERR / DICERR | 10/31/2009 | N/A | | New terminal type and application required. |
| ICE 5500 EMV | ICEEMV / DICEEMV | 10/31/2009 | N/A | | New terminal type and application required. |
| VERIFONE NURIT RETIRED APPLICATIONS | | | | | |
| 2085 / 2085+ / 3010 / 3020 / 8000+ / 8000 Secure / 8010+ / 8320+ | MDLPRTL | 09/28/2008 | MDNRRTL | Available now | |

TSYS Acquiring Solutions® Terminal Compliance Matrix
Retired Applications

| Terminal Type | Retired Application | Retirement Date | Replacement Application | Replacement Application Available Date | Comments |
|---|---------------------|-----------------|-------------------------|--|--|
| 2085 / 2085+ / 3010 / 3020 / 8000+ / 8000 Secure / 8010+ / 8320+ | MDLPRST | 09/28/2008 | MDNRRST | Available now | |
| 2085 / 2085+ / 3010 / 3020 / 8000+ / 8000 Secure / 8010+ / 8320+ | MLIPRTL | 09/28/2008 | MNURRTL | Available now | |
| 2085 / 2085+ / 3010 / 3020 / 8000+ / 8000 Secure / 8010+ / 8320+ | MLIPRST | 09/28/2008 | MNURRST | Available now | |
| 2085 / 2085+ / 3010 / 3020 / 8000+ / 8000 Secure / 8010+ / 8320+ | LIPRST | 10/31/2009 | MNURRST | Available now | Requires minimum Nurit Operating System (NOS) of 7.xx |
| 2085 / 2085+ / 3010 / 3020 / 8000+ / 8000 Secure / 8010+ / 8320+ | DLIPRST | 10/31/2009 | MDNRRST | Available now | Requires minimum Nurit Operating System (NOS) of 7.xx |
| 2085 / 2085+ / 3010 / 3020 / 8000+ / 8000 Secure / 8010+ / 8320+ | LIPRTL | 10/31/2009 | MNURRTL | Available now | Requires minimum Nurit Operating System (NOS) of 7.xx |
| 2085 / 2085+ / 3010 / 3020 / 8000+ / 8000 Secure / 8010+ / 8320+ | DLIPRTL | 10/31/2009 | MDNRRTL | Available now | Requires minimum Nurit Operating System (NOS) of 7.xx |
| VERIFONE OMNI RETIRED APPLICATIONS | | | | | |
| The OMNI 3300 and OMNI 3350 terminals were retired on 10/19/2008. The OMNI 395 and OMNI 470 terminals were retired on 10/31/2009. Merchants using these terminal types will need to obtain new supported terminals. | | | | | |
| 3300 / 3350 | any | 10/19/2008 | N/A | | Merchants using these devices must obtain a new supported terminal type and application. |
| 3300 / 3350 | any | 10/19/2008 | N/A | | Merchants using these devices must obtain a new supported terminal type and application. |
| 3300 / 3350 | any | 10/19/2008 | N/A | | Merchants using these devices must obtain a new supported terminal type and application. |
| 3300 / 3350 | any | 10/19/2008 | N/A | | Merchants using these devices must obtain a new supported terminal type and application. |
| 395 / 470 | any | 10/31/09 | N/A | | Merchants using these devices must obtain a new supported terminal type and application. |

TSYS Acquiring Solutions® Terminal Compliance Matrix
Retired Applications

| Terminal Type | Retired Application | Retirement Date | Replacement Application | Replacement Application Available Date | Comments |
|---|---------------------|-----------------------------------|--|--|--|
| 3300 / 3350 | UEVA291 | 10/19/2008 | N/A | | Merchants using these devices must obtain a new supported terminal type and application. |
| 395 / 396 / 470 / 3200 / 3210 | VSR021 | 10/26/2006 | VSVR046 | Available now | |
| 395 / 396 / 470 / 3200 / 3210 | VSVR022 | 10/26/2006 | VSVR046 | Available now | |
| 395 / 396 / 470 / 3200 / 3200SE / 3210 / 3210SE | VSVR046 | If downloaded prior to 10/31/2007 | VSVR046 | Available now | New application version with same name |
| 3300 / 3350 | OMCHK01 | 09/04/2008 | N/A | | Merchants using these devices must obtain a new supported terminal type and application. |
| 3740 / 3750 | OMCHK01 | 09/04/2008 | OMCHK02 | Available now | OMCHK02 will be retired on 10/31/2009 with no replacement. |
| 3730 / 3730LE / Vx510 / Vx510LE / Vx570 | VXCHK01 | 09/04/2008 | VXCHK02 | Available now | VXCHK02 will be retired on 10/31/2009 with no replacement. |
| 3300 / 3350 | OMGFT01 | 09/28/2008 | N/A | | Merchants using these devices must obtain a new supported terminal type and application. |
| 3740 / 3750 | OMGFT01 | 09/28/2008 | OMGFT02 | Available now | |
| 3730 / 3730LE / Vx510 / Vx510LE / Vx570 | VXGFT01 | 09/28/2008 | VXGFT02 | Available now | |
| 3730 / 3730LE / Vx510 / Vx510LE / Vx570 | VXCHK02 | 10/31/2009 | N/A | | TSYS no longer supports POS check applications |
| 3740 / 3750 | OMGFT02 | 10/31/2009 | N/A | | TSYS no longer supports POS check applications |
| 3740 / 3750 | UEVA231 | 10/31/2009 | UEVA300 | Available now | |
| 3740 / 3750 | UEVA271 | 10/31/2009 | UEVA300 | Available now | |
| 395 / 396 / 470 / 3200 / 3210 | VSVR035 | 10/31/2009 | VSVR046 (for 396 and 32x0 series only) | Available now | |
| 395 / 396 / 470 / 3200 / 3210 | VSVR045 | 10/31/2009 | VSVR046 (for 396 and 32x0 series only) | Available now | |
| 395 / 396 / 470 / 3200 / 3210 | VSVR046 | If downloaded prior to 01/28/2010 | VSVR046 (for 396 and 32x0 series only) | Available now | |

TSYS Acquiring Solutions® Terminal Compliance Matrix
Retired Applications

| Terminal Type | Retired Application | Retirement Date | Replacement Application | Replacement Application Available Date | Comments |
|--|---------------------|-----------------------------------|-------------------------|--|--|
| VERIFONE TRANZ RETIRED APPLICATIONS | | | | | |
| Tranz 460 | VT46DA1 | 10/23/2006 | VT46DA4 | Available now | |
| Tranz 460 | VT46DA2 | 10/23/2006 | VT46DA4 | Available now | |
| Tranz 460 | VT46DA3 | 10/23/2006 | VT46DA4 | Available now | |
| Tranz 460 | VT46DA4 | If downloaded prior to 10/31/2007 | VT46DA4 | Available now | New application version with same name |
| Tranz 380 | VT13CA1 | 01/29/2007 | VT13DA9 | Available now | |
| Tranz 380 | VT13CE1 | 10/23/2006 | VT13DA9 | Available now | |
| Tranz 380 | VT13DA1 | 10/23/2006 | VT13DA9 | Available now | |
| Tranz 380 | VT13DA3 | 10/23/2006 | VT13DA9 | Available now | |
| Tranz 380 | VT13DA4 | 10/23/2006 | VT13DA9 | Available now | |
| Tranz 380 | VT13DA5 | 10/23/2006 | VT13DA9 | Available now | |
| Tranz 380 | VT13DA6 | 10/23/2006 | VT13DA9 | Available now | |
| Tranz 380 | VT13DA7 | 01/29/2007 | VT13DA9 | Available now | |
| Tranz 380 | VT13DA8 | 01/29/2007 | VT13DA9 | Available now | |
| Tranz 380 | VT13DA9 | If downloaded prior to 10/31/2007 | VT13DA9 | Available now | New application version with same name |
| Tranz 380 | VT13PA1 | 10/23/2006 | VT13DA9 | Available now | |
| Tranz 380 | VT13PA3 | 10/23/2006 | VT13DA9 | Available now | |
| Tranz 380 | VT13QC1 | If downloaded prior to 01/20/2008 | VT13QC1 | Available now | New application version with same name |
| Tranz 380 | VT1H383 | 10/23/2006 | VT1H386 | Available now | |
| Tranz 380 | VT1H384 | 10/23/2006 | VT1H386 | Available now | |
| Tranz 380 | VT1H385 | 10/23/2006 | VT1H386 | Available now | |
| Tranz 380 | VT1H386 | If downloaded prior to 11/14/2007 | VT1H386 | Available now | New application version with same name |
| Tranz 330 | VT1TPH5 | 10/23/2006 | VT1TPH6 | Available now | |
| Tranz 330 | VT1TPH6 | If downloaded prior to 10/07/2009 | VT1TPH6 | Available now | New application version with same name |
| Tranz 330 | VSTDB01 | If downloaded prior to 11/14/2007 | VSTDB01 | Available now | New application version with same name |

TSYS Acquiring Solutions® Terminal Compliance Matrix
Retired Applications

| Terminal Type | Retired Application | Retirement Date | Replacement Application | Replacement Application Available Date | Comments |
|---------------|---------------------|-----------------------------------|-------------------------|--|--|
| Tranz 330 | VSTTC04 | 10/23/2006 | VT1TP08 | Available now | |
| Tranz 330 | VSTTR01 | 10/23/2006 | VT1TP08 | Available now | |
| Tranz 330 | VSTTR04 | 10/23/2006 | VT1TP08 | Available now | |
| Tranz 330 | VT1CD01 | 10/23/2006 | VT1CD02 | Available now | |
| Tranz 330 | VT1CD02 | If downloaded prior to 10/31/2007 | VT1CD02 | Available now | New application version with same name |
| Tranz 330 | VT1DB01 | If downloaded prior to 11/14/2007 | VT1DB01 | Available now | New application version with same name |
| Tranz 330 | VT1TC04 | 10/23/2006 | VT1TP08 | Available now | |
| Tranz 330 | VT1TCA2 | 10/23/2006 | VT1TPA7 | Available now | |
| Tranz 330 | VT1TP04 | 10/23/2006 | VT1TP08 | Available now | |
| Tranz 330 | VT1TP05 | 10/23/2006 | VT1TP08 | Available now | |
| Tranz 330 | VT1TP06 | 10/23/2006 | VT1TP08 | Available now | |
| Tranz 330 | VT1TP07 | 10/23/2006 | VT1TP08 | Available now | |
| Tranz 330 | VT1TP07 | 10/23/2006 | VT1TP08 | Available now | |
| Tranz 330 | VT1TP08 | If downloaded prior to 08/17/2007 | VT1TP08 | Available now | New application version with same name |
| Tranz 330 | VT1TPA4 | 10/23/2006 | VT1TPA7 | Available now | |
| Tranz 330 | VT1TPA5 | 10/23/2006 | VT1TPA7 | Available now | |
| Tranz 330 | VT1TPA6 | 09/28/2008 | VT1TPA7 | Available now | |
| Tranz 330 | VT1TPA7 | If downloaded prior to 08/17/2007 | VT1TPA7 | Available now | New application version with same name |
| Tranz 330 | VT1TPH5 | | VT1TPH6 | Available now | |
| | | | | | |

TSYS Acquiring Solutions® Terminal Compliance Matrix
Retired Applications

| Terminal Type | Retired Application | Retirement Date | Replacement Application | Replacement Application Available Date | Comments |
|--|---------------------|-----------------|-------------------------|--|--|
| VERIFONE ZON JR & XL300 RETIRED APPLICATIONS | | | | | |
| Zon Jr XL / XL300 | VXPCD01 | 10/23/2006 | VXPCD02 | Available now | |
| Zon Jr XL / XL300 | VXP0C16 | 10/23/2006 | VXP0P17 | Available now | |
| Zon Jr XL / XL300 | VXL0C32 | 10/23/2006 | VXL0P33 | Available now | |
| Zon Jr XL / XL300 | VXL0P32 | 10/31/2009 | VXP0P17 | Available now | VXP0P17 requires a printer attachment |
| Zon Jr XL / XL300 | VXL0P33 | 10/31/2009 | VXP0P17 | Available now | VXP0P17 requires a printer attachment |
| Zon Jr XL / XL300 | VXP0P16 | 10/31/2009 | VXP0P17 | Available now | VXP0P17 requires a printer attachment |
| THALES ARTEMA AND TALENTO RETIRED APPLICATIONS | | | | | |
| Effective 10/19/2008, TSYS Acquiring Solutions discontinued support for Thales terminals and applications. Merchants will need to obtain a new terminal device with a current supported application from another provider. | | | | | |
| Artema A-ONE CDPD / Artema A-IPP CDPD / Artema A-IPPS CDPD | TCDP04 | 10/19/2008 | N/A | | Supported terminal type and application required |
| Artema A-ONE Motient / Artema A-IPP Motient / Artema A-IPPS Motient | TDTCD02 | 10/19/2008 | N/A | | Supported terminal type and application required |
| Talento T-ONE / Talento T- IPP / Talento T-IPPS | 52C8072 | 10/23/2006 | N/A | | Supported terminal type and application required |
| Talento T-ONE / Talento T- IPP / Talento T-IPPS | TLT002 | 10/19/2008 | N/A | | Supported terminal type and application required |
| Talento T-ONE / Talento T- IPP / Talento T-IPPS | TLT004 | 10/19/2008 | N/A | | Supported terminal type and application required |
| INGENICO AND DATACARD RETIRED APPLICATIONS | | | | | |
| Elite 712 | SA00084 | 10/31/2009 | N/A | | Supported terminal type and application required |
| eNcounter 4000 / eNcounter 4000 LAN | JIGSRST | 10/31/2009 | N/A | | Supported terminal type and application required |
| eNcounter 4000 / eNcounter 4000 LAN | JIGSRTL | 10/31/2009 | N/A | | Supported terminal type and application required |