



Value through Innovation

VP3300/VP3300C/VP3300E

User Manual



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ID TECH

10721 Walker Street, Cypress, CA 90630-4720

Tel: (714) 761-6368 Fax (714) 761-8880

www.idtechproducts.com

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ID TECH
10721 Walker Street
Cypress, CA 90630 USA

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FCC warning statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The user manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with FCC RF radiation exposure limits set forth for an uncontrolled environment.

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter and must be installed to provide a separation distance of at least 20cm from all persons.

Cautions and Warnings



Warning: Avoid close proximity to radio transmitters, which may reduce the capabilities of the reader.

Revision History

Date	Rev	Changes	Author
04/08/2021	M	Implemented Revision History Added VP3300BT Mounting and EMV Contactless Logo Requirements	CB
05/04/2021	N	Added note about ECP 2.0 support in Major Features and Contactless NFC Features sections	CB
03/03/2022	O	Added VP3300 Mounting Requirements section	CB
08/14/2023	P	Updated external links.	CB

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1. Introduction

The ViVOpay VP3300 is ID TECH's family of ultra-compact, EMV L1- and L2-certified contactless card readers, designed for low cost, high reliability, and maximum compatibility with existing contactless payment technologies (including Apple Pay, Google Pay, and Samsung Pay).

The VP3300 family includes models with and without contact-EMV capability, as well as with and without magnetic swipe reader (MSR) functionality. The VP3300C, which offers contactless-transaction capability *without* contact-EMV or MSR, provides an extremely cost-effective way for merchants to add tap-and-go capability to existing payment options without the need to replace other hardware. Likewise, the VP3300E offers an economical way for merchants who already have MSR capability to add contact-EMV and NFC functionality.

The VP3300 series incorporates the proven EMV L2 kernel of ID TECH's popular UniPay III card reader. Developers can integrate VP3300-series products into EMV-ready terminal systems with minimal effort using ID TECH's Universal SDK, available for Windows, Android, or iOS.

1.1. Major Features of the VP3300 Family

- Micro-USB port for communications and power
- Magnetic stripe support (VP3300 only): ISO 7810/ISO 7811, Hi-Co+Lo-Co Magnetic, JIS1/JIS2
- MSR (VP3300 only) is bidirectional, reading up to 3 tracks of data at once
- ICC support (VP3300 and VP3300E): EMV Level 1 and EMV L2 approvals; all L1 & L2 on the device
- Contactless transaction support via Near Field Communication (NFC): all models
- LED status indicator
- Audio feedback
- Field upgradable firmware
- Standby mode for low power consumption
- Compact and ergonomic design to integrate with a variety of devices
- Available with a sturdy stand for tabletop use
- TDES and AES 128 encryption support
- DUKPT key management
- Software Development Kits for Windows, Android, iOS
- One-year manufacturer's warranty
- Supports 16 contact and 16 contactless AIDs, for a total of 32 AIDs
- ECP 2.0 Support¹

Feature	VP3300	VP3300C	VP3300E
Contactless reader (NFC capability)	✓	✓	✓
ICC reader with landing contacts and EMV L1 and L2 certification	✓		✓
3-track MSR (magstripe reading)	✓		

¹ Supported in NEO 1.10.035 and above. Not supported in NEO 1.01 firmware.

Feature	VP3300	VP3300C	VP3300E
EMVCo Contactless L1 and major card brand contactless certifications (L2's)	✓	✓	✓
Compact Size	✓	✓	✓
4 Green LEDs for contactless indication	✓	✓	✓
Audio feedback to signal good and bad card reads, etc.	✓	✓	✓
TDES and AES encryption algorithms	✓	✓	✓
Supports ID TECH standard TR31 (and optional TR34) Remote Key Injection	✓	✓	✓
Supports multiple key slots	✓	✓	✓
RoHS and REACH compliant	✓	✓	✓
One year manufacturer warranty	✓	✓	✓

1.2. Magnetic Stripe Features (VP3300 only)

- ISO 7810 / ISO 7811
- AAMVA format
- JIS I / II
- Single / Dual / Triple Track Support
- Bi-directional reading
- Samsung Pay MST

1.2.1. ICC Contact Card Features (VP3300, VP3300E)

- EMVCo Contact Level 1 & 2 compliant

1.2.2. Contactless NFC Features

- ISO 14443 Type A & B
- ISO 18092 (P2P)
- MasterCard® MCL (Formerly PayPass)
- Visa payWave/VCPS
- Visa IRWIN
- Discover® DPAS
- American Express® ExpressPay
- MIFARE
- Apple Pay
- Apple VAS Loyalty
- Samsung Pay NFC & MST
- Google Pay
- Google SmartTap Loyalty
- ECP 2.0 Support²

² Supported in NEO 1.10.035 and above. Not supported in NEO 1.01 firmware.

1.3. Supported USB Interfaces

- USB-HID or USB-KB

1.4. Before Using VP3300 Products

Devices in the VP3300 family are compact micro-USB devices for handling contactless transactions. Each VP3300-series device is designed to operate in conjunction with certified third party payment software and compatible hosts, such as USB-equipped tablets, PCs, and smartphones. Before connecting a VP3300 to its host, install and activate the software application service according to the instructions provided by the payment application service or software provider, then connect the VP3300 to the host through a micro-USB cable (not included).

Note: Not all mobile devices allow connections to external USB devices via USB On-The-Go cables. If a mobile device does not support OTG cables, it will not recognize a VP3300, preventing a VP3300 from working with the ID TECH USDK Demo or any mobile merchant apps. Verify OTG cable support with the mobile device manufacturer.

1.5. Electrical Power

	State	Typical Current Draw	Current Draw with Buzzer On
	Idle (Poll on Demand, Contactless OFF)	80 mA	Maximum 230 mA
	Idle (Poll on Demand, Contactless ON)	400 mA	Maximum 530 mA
	Autopoll Mode	400 mA	Maximum 530 mA

Transactions per battery charge:

250 MSR + 125 EMV + 125 EMV CTLS transactions (Total 500 transactions) per charge.

1.6. LED Status and Audible Beeper During Transactions and Operation

Device Status	4 LEDs	Audible Beeper
Run Mode	Left LED Flash 300ms on/5s off	
Contactless Read Successful	All 4 LEDs flash Once	1 longer beep
Contactless Read Failed		2 short beeps
ICC is being Processed	Left LED flashes: 500ms on/off; DO NOT remove card	
Magnetic Stripe Read Successful	All 4 LEDs flash Once	1 longer beep
Magnetic Stripe Read Failed		2 short beeps

Physical Specifications (VP3300, VP3300C, VP3300E)

Item	Specification
Physical Dimensions	64mm x 49mm x 14.5mm(LxWxH)
Structure Material	Plastic, PC UL 94V-0
Texture	MT11010
Weight	50g

Operation and Storage Environment

Item	Specification	Note
Operating Temperature	0 °C to 55 °C	1. Non-condensing. 2. Product operation temperature is limited to the range for the reason of the constraint of Li-Battery specification.
Storage Temperature	-20 °C to 60 °C	1. Non-condensing. 2. Product storage temperature is limited to the range for the reason of the constraint of Li-Battery specification.
Operating Humidity	5% to 95%	Non-condensing
Storage Humidity	5% to 95%	Non-condensing

1.7. Other Agency Approvals and Compliances

- CE (EN55022/EN55024, Class- B)
- FCC (Part 15, Class-B)
- RoHS (DIRECTIVE 2011/65/EU)
- REACH
- EMV Contact L1 & L2
- EMV Contactless L1

2. For Software Developers: Software Development Support

VP3300 devices are designed to be compatible with a wide range of third party payment applications. ID TECH offers a Universal SDK for iOS, Android, or Windows to enable rapid application development with any model of VP3300 as the target device. Supported languages include Objective C (on iOS), Java (on Android), and C# (on Windows). The Universal SDK includes rich, powerful libraries that make communication with VP3300 comparatively easy while greatly facilitating debugging.

Normally, development of applications that take advantage of VP3300 capabilities can be done in a high-level language like Java or C# (using convenience objects and data structures), obviating the need to send hex-code commands directly via USB-HID.

Nevertheless, if you need to communicate with the device via audio jack or via USB-HID, it is possible to do so. For a command reference for VP3300-series products, consult the *NEO Interface Developers Guide* (IDG), P/N 80139403-001.

2.1. Best Practices for VP3300 Developers

When developing payment applications for Android and iOS, make sure to consult the *ID TECH Universal SDK Guide* for your respective platform for best practices to follow. Download the *Universal SDK Guide* from the [VP3300 product page](#) as part of the ZIP file for your development platform.

ID TECH strongly recommends that integrators include a way for users to update their passwords.

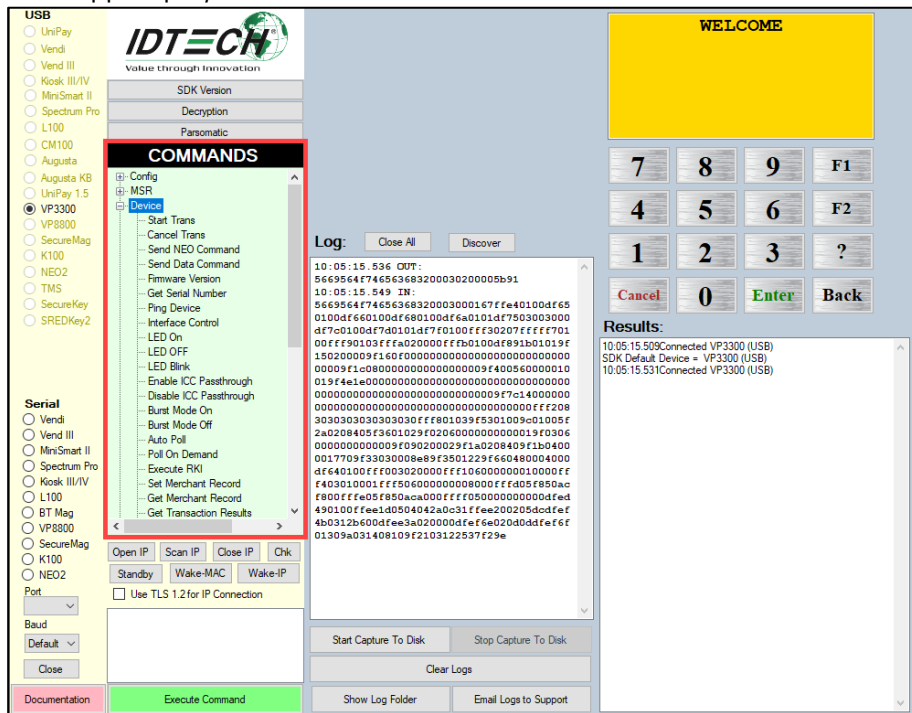
2.2. USDK Demo App

The Universal SDK comes with a rich, fully featured demo app. The SDK includes complete source code for the demo app. ID TECH also offers a [standalone version of the USDK Demo](#) on the ID TECH Knowledge Base.

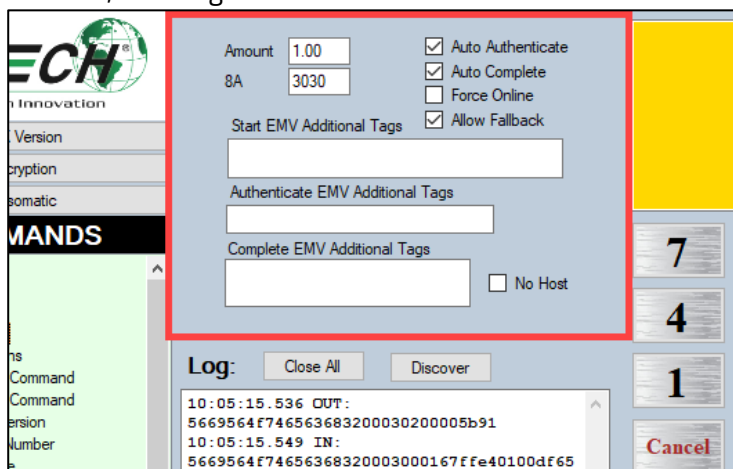
To use the USDK Demo app:

1. Plug a VP3300-series device into a Windows computer using a USB-to-micro-USB cable.
2. Open **UniversalSDKDemo.exe**.

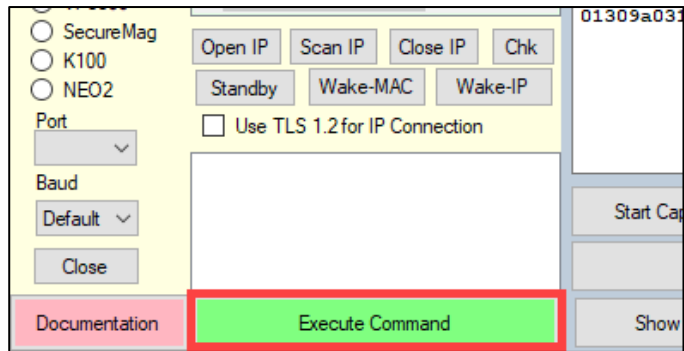
The USDK Demo App displays available commands in a command tree:



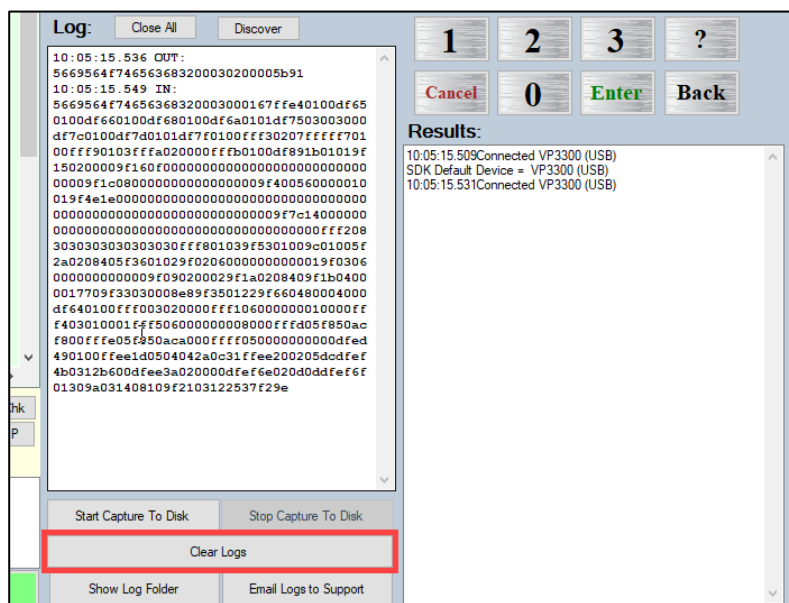
Single-click on a command to populate the center panel of the window with optional settings relevant to the command (for example, **Amount** and **Start EMV Additional Tags**). In some cases, the app provides text fields, allowing users to enter custom values:



To execute a command, double-click it in the command tree or click **Execute Command**:



The command executes in real time and a data trace appears automatically in the center and/or right-hand panels. Use the **Clear Logs** button to clear both panels:



2.3. Updating VP3300 Firmware

The steps below describe the process for updating VP3300 firmware via the Universal SDK Demo.

When developing payment applications, make sure to consider that recommended firmware updates include new features, enhancements, and bug fixes. ID TECH strongly recommends that payment application developers include one of the existing methods for firmware updates: via the ID TECH Universal SDK or via low-level commands.

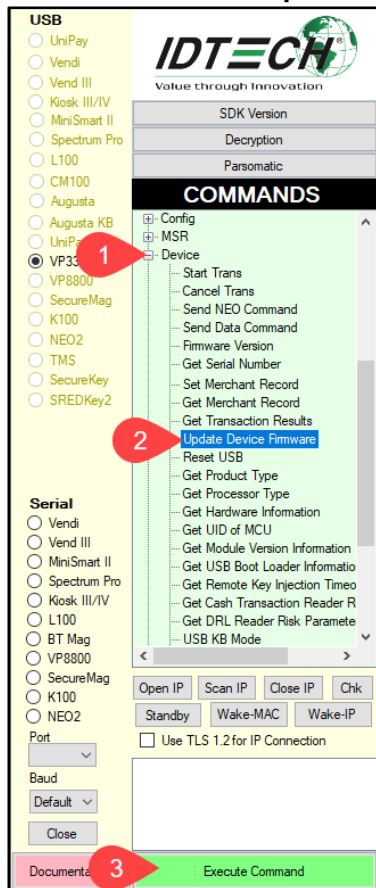
To implement the USDK method, review the USDK package with sample source code and documentation appropriate to the desired platform. To implement the low-level command method, contact your ID TECH representative for information.

Note: Before you begin, contact your ID TECH representative to receive the most recent VP3300 firmware. Download the ZIP file and extract it to your computer.

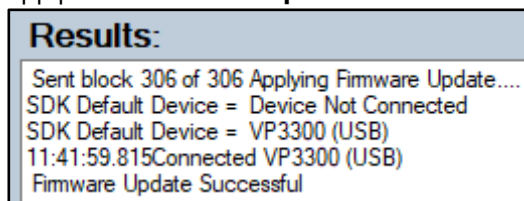
1. Connect the VP3300 to your PC via USB or serial port.
2. Download and install the latest [USDK Demo app](#) from the ID TECH Knowledge Base (if you cannot access the link, please [contact support](#)).
3. Open the USDK Demo app from the Windows Start menu.



- Under **Device**, select **Update Device Firmware**, then click **Execute Command**.



- Navigate to and select the VP3300 firmware file you downloaded earlier and click **Open**.
- The VP3300 reboots and enters the bootloader, at which point the USDK Demo app begins updating the device.
- When the firmware update completes, the VP3300 reboots again and the USDK Demo app prints **Firmware Update Successful** in the **Results** panel.



2.4. What Kind of USB Cable to Use with a VP3300

The table below provides scenarios for using a VP300 with a USB cable and the type of cable required.

Scenario	Device Communication	Cable Required
I want to charge the VP3300.	None	Standard micro USB cable
I want to connect the VP3300 to a computer to power the device and use the computer as a host device.	USB-HID	Standard micro USB cable*
I want to connect the VP3300 to a mobile device to power the VP3300, use the mobile device as a host device, and power both the VP3300 and mobile device via power injection.	USB-HID	Powered OTG micro USB cable*

* Also supports updating firmware.

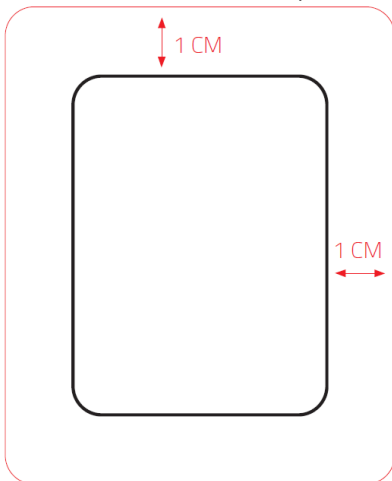
2.5. VP3300 Mounting and EMV Contactless Logo Requirements

Note that if the VP3300 is mounted behind any kind of casing or cover, that assembly **MUST** follow EMV requirements regarding contactless logo size and position. See [EMVco Contactless Symbol Reproduction Requirements](#) for details.

2.6. VP3300 Mounting Requirements

Note that the VP3300 antenna's RF field antenna is sensitive to the proximity of metal. There are three options for mounting the VP3300 in or on a metal surface:

- Mount with the front of the VP3300 at least 1cm *forward* of any metal.
- Mount with the front of the VP3300 at least 1cm *behind* any metal. Note that this will reduce the effective range of the antenna.
- Mount the front of the VP3300 flush with the metal, but allow a minimum of 1cm distance from the metal, as shown below:



3. VP3300 Troubleshooting

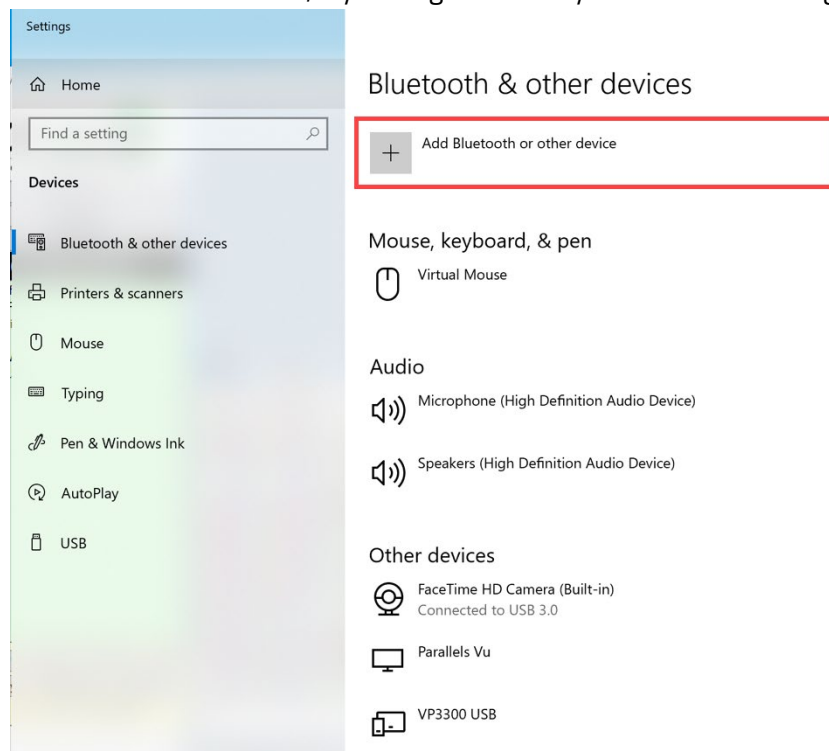
Follow the steps below when troubleshooting VP3300 issues.

3.1. Checking for Power Issues

1. Turn on the VP3300.
2. Check to see if the VP3300 is battery-powered
 - a. If it is, make sure that it has enough battery charge, and recharge it if needed.
3. If the VP3300 is not battery powered, check to make sure the power supply is connected and providing power to the device.
4. The VP3300 should have a lit green LED if it is on and has enough power.

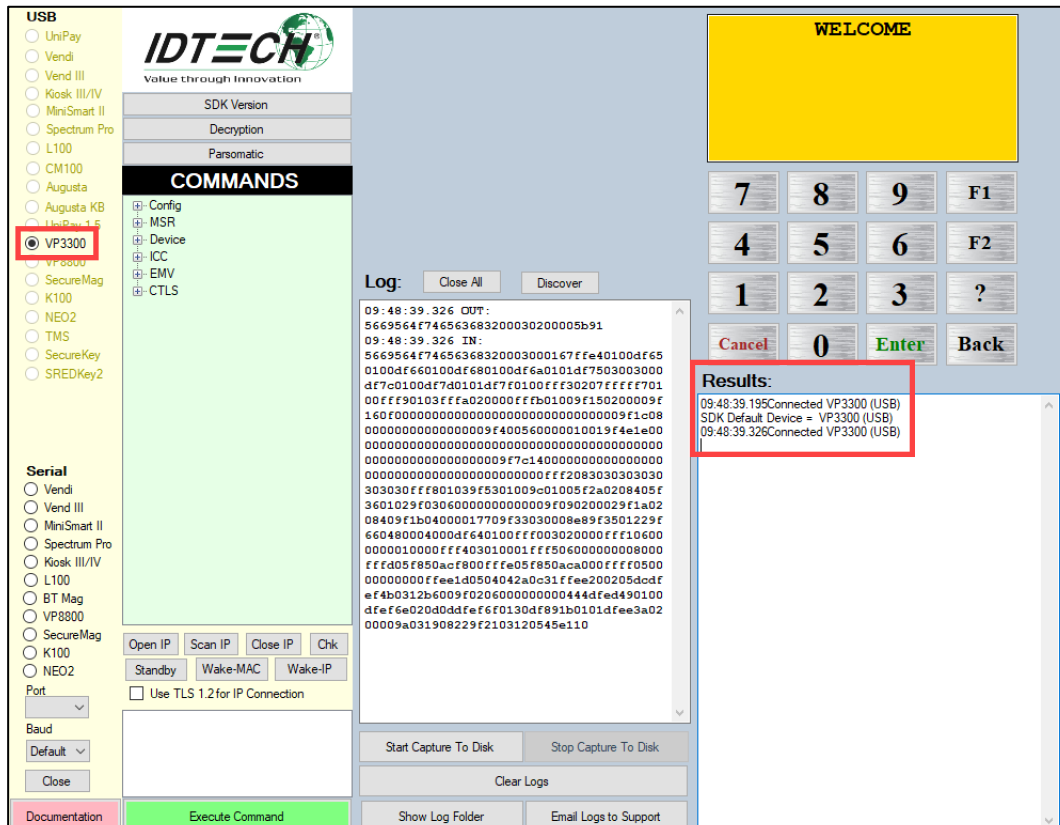
3.2. Checking for Connectivity Issues

1. After the checking the VP3300 for all possible power issues, connect it to a computer.
2. Check if Windows Device Manager displays the VP3300.
 - a. If the device is not there, try adding it manually in the device manager.



3. If the Device Manager does display the VP3300, launch the USDK Demo application.

4. Check for the VP3300 in the USDK Demo app. In the screenshot below, the **USB** connected device tab and **Results** field display a connected **VP3300**.



If the VP3300 still does not connect, attempt to manually connect it through the Device Manager again.

3.3. Testing in the USDK Demo App

1. First, enter a basic command to make sure that the device is working. The example below uses the **Get Serial Number** command:

The screenshot shows the USDK Demo App interface. On the left, the 'COMMANDS' list is expanded to 'Device', and 'Get Serial Number' is highlighted with a red box. Below the list are buttons for 'Open IP', 'Scan IP', 'Close IP', 'Chk', 'Standby', 'Wake-MAC', and 'Wake-IP'. A checkbox for 'Use TLS 1.2 for IP Connection' is present. The 'Log' window shows a long string of hexadecimal data. The 'Results' window shows the following text:

```
09:48:39.195Connected VP3300 (USB)
SDK Default Device = VP3300 (USB)
09:48:39.326Connected VP3300 (USB)
Serial Number: 739T025795
Serial Number: 739T025795
```

2. Next, enter a command that changes a device setting, like the **Set Date** command:

The screenshot shows the USDK Demo App interface. On the left, the 'COMMANDS' list is expanded to 'Device', and 'Set Date' is highlighted with a red box. Below the list are buttons for 'Open IP', 'Scan IP', 'Close IP', 'Chk', 'Standby', 'Wake-MAC', and 'Wake-IP'. A checkbox for 'Use TLS 1.2 for IP Connection' is present. The 'Log' window shows a long string of hexadecimal data. The 'Results' window shows the following text:

```
09:48:39.195Connected VP3300 (USB)
SDK Default Device = VP3300 (USB)
09:48:39.326Connected VP3300 (USB)
Serial Number: 739T025795
Serial Number: 739T025795
Set Date executed successfully.
```

- Next, enter the **Start Trans** command under the **Device** tab to verify the VP3300 accepts payments:

COMMANDS

- Device
 - Start Trans**
 - Cancel Trans
 - Send NEO Command
 - Send Data Command
 - Firmware Version
 - Get Serial Number
 - Ping Device
 - Interface Control
 - LED On
 - LED OFF
 - LED Blink
 - Enable ICC Passthrough
 - Disable ICC Passthrough
 - Burst Mode On
 - Burst Mode Off
 - Auto Poll
 - Poll On Demand
 - Execute RKI
 - RKI Rev A (DEMO)
 - RKI Rev A (PRODUCTION)
 - RKI Rev B (DEMO)
 - RKI Rev B (PRODUCTION)
 - Set Merchant Record

Complete EMV Additional Tags No Host

Log: Close All Discover

```

3537393500000000027dc
09:53:12.010 OUT:
5669564f7465636832001201000018a5
09:53:12.010 IN:
5669564f7465636832001200000f37339543032
3537393500000000027dc
09:59:31.424 OUT:
5669564f7465636832002503000420190828a1f2
09:59:31.424 IN:
5669564f7465636832002500000efec
10:50:00.989 OUT:
5669564f7465636832006014000120fb14
10:50:00.989 IN:
5669564f7465636832006000000100e1cf
10:50:00.989 OUT:
5669564f746563683200024000160a9c01009f02
06000000001009f030600000000000e1f8
10:50:10.802 IN:
5669564f7465636832000200008c48dfee250200
11dfee233d0237008017002600a2003b34343237
383038303031313132323233333337d31353132
32303131383232323938333f3637333954303235
3739357648039f390190f fee0104df30010cdfee
260148dfef4c0600250000000dfef4d253b3434
323738303830303131313232323333373d3135
313232303131383232323938333f6e61
  
```

Results:

Start Transaction Successful
Transaction Data Found
cardData.emv_resultCode = EMV_RESULT_CODE_MSR_SWIPE_CAPTURED

Return Code: RETURN_CODE_DO_SUCCESS

Base64 Raw Data:
VmlWVT3RlY2gyAAIAAkv3+4AgAR3+4PQI3AIAxYAgA7NDQy
NzgwODAwMTExMjlyMzZz333337d313531323230313138323232393
833f3637333954303235373935764803dfef25020011dfee26014
8dfef4c0600250000000dfef4d253b34343237383038303031313
132323233333373d3135313232303131383232323938333f6e61
104df30010c

Serial Number: 7397025795
Track 2: :4427808001112223337=15122011822298376

Unencrypted Tags:
9f39190dfef233d0237008017002600a2003b343432373830383
03031313132323233333337d313531323230313138323232393
833f3637333954303235373935764803dfef25020011dfee26014
8dfef4c0600250000000dfef4d253b34343237383038303031313
132323233333373d3135313232303131383232323938333f6e61
104df30010c

9F39: 90
DFEE23:
0237008017002600a2003b343432373830383030313131323232

- Finally, enter the **Start EMV Trans** command to verify that EMV works on the VP3300.

COMMANDS

- Config
- MSR
- Device
- ICC
- EMV
 - Transaction
 - Start EMV Trans**
 - Authenticate EMV Trans
 - Complete EMV Trans
 - Cancel EMV Trans
 - Retrieve Tags
 - Kernel
 - Terminal Config
 - AID
 - CAPK
 - CRL
 - CTLS

Complete EMV Additional Tags No Host

Log: Close All Discover

```

5669564f74656368320061010010030000020045
4e030081151c0200000aeeee
11:06:03.206 IN:
5669564f7465636832006000007440dfef250200
049f100706010a03a400009f2608a46c1d4c09da
389b9f2701809f360200019f370406c6b77c9f02
060000000001009f4d009f4f009f1300950542c0
0080009b02c8009f0306000000000009f34031e
03009f3901059f1e083954303235373935f fee01
04df300101dfee2601404036
11:06:03.253 OUT:
5669564f74656368320060120005018a0230304f
0e
11:06:03.253 IN:
5669564f74656368320060630000ff0e
11:06:03.378 IN:
5669564f74656368320061010010030000020045
4e030081031c02000000398b
11:06:03.393 IN:
5669564f7465636832006000007940dfef250200
029f100706010a039400009f2608f4440102555f
30169f2701409f360200019f370406c6b77c9f02
060000000001009f4d009f4f009f1300950542c0
0080009b02c8009f0306000000000009f34031e
030099009f3901059f1e083954303235373935f
5b00f fee0104df300101dfee2601408162
  
```

Results:

Start EMV Successful
Transaction Data Found
cardData.emv_resultCode = EMV_RESULT_CODE_GO_ONLINE
Go Online Detected
Auto Complete Detected
Online request. Auto Complete EMV Transaction.
Transaction Data Found
cardData.emv_resultCode = EMV_RESULT_CODE_APPROVED

Return Code: RETURN_CODE_DO_SUCCESS

Base64 Raw Data:
VmlWVT3RlY2gyAGAAAIA3+4IAGCnxAHBgEKA5QAAJ8mCP1EA
QJVXzAWnycBQJ82AgABnzcEBsa3fJ8BgAAAAABAJ9NJA9PAJ
8TAJUFQsAAgACbAugAnwMGAAAAAAAnzGDHgMAmCGQGF
rx4IOVQwMjU3OTVWwD/7gEE3zABAd/uJfAgWl=

Unencrypted Tags:
950542c00080099009b02e8009f02060000000001009f0306000
000000009f100706010a039400009f13009f1e083954303235373
9359f2608f440102555f30169f2701409f34031e03009f36020001
9f370406c6b77c9f3901059f4d009f4f009f5b00dfef25020002dfef
260140dfef0104df300101

95: 42c0008000
99:
9B: e800

3.4. Further Issues

For any further issues, restart the USDK Demo app, disconnect and reconnect the VP3300, and complete the above process again.

For any issues with a specific command, email ID TECH Customer Support at support@idtechproducts.com (sending an email to this address automatically generates a support ticket).

4. For More Information

- To learn more about the VP3300 and other ID TECH products, visit the [ID TECH Knowledge Base](#).
- Visit us online at <http://idtechproducts.com>.
- Find more Tech Support resources at the [ID TECH Tech Support home page](#) or send an email describing any issues to support@idtechproducts.com.