Busan IDC
Service Usage Guidelines

May 2019

Version 1.2

KOSCOM

Revision History

Version	Distribution Date	History
Ver 1.0	08.2016	First distribution
Ver 1.1	07.2018	• New Service : Storage, Remote Hands • IPLC Application change : In order to strengthen the management and supervision of the unfair trade environment
Ver 1.2	05.2019	• Definition of Hosting • Clarification of the customer list submission date • Changing of IPLC Service Usage Standard(planned for May 2020) • Definition Clarification of X-Connect • Elimination of PTP service

※ In the event of any discrepancy between Korean original and any other translation thereof, the Korean original version shall govern the matters in question.

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1. Contact Information

| Sales or Contract Inquiries |

Department	Telephone	E-Mail
Financial Investment IT Sales Department	82) 2-767-7234	DC_Sales@koscom.co.kr

| Technical or Operation Related Inquiries |

Department	Telephone	E-Mail
Busan IDC Center	82) 2-767-7795, 7796	DC_Opers@koscom.co.kr

2. Terms

The terms used in this 「Busan IDC Service Usage Guidelines」 have the following meanings:

｜Busan IDC｜

"Busan IDC" is the Derivatives Proximity Datacenter which is built and operated by Koscom Corporation (hereunder referred to as "KOSCOM") at the closest distance from KRX Busan Derivatives Center. It provides connectivity services which enable market participants to connect KRX Derivatives Matching Engines and Market Information Systems.

｜Cage｜

"Cage" is the caged space within the server room of Busan IDC where Members' FEP system and Buy-Side's trading system can be installed. Hosting Service Providers and Network Service Providers can also use Cages for their services.

｜Hosting｜

"Hosting" refers to Hosting Service Provider providing a service space("Cage") for a "User" to install a server (allowed for the installation of communication equipments that Network Service Providers owned).

｜Stock-Net｜

"Stock-Net" is the dedicated network for the Korean capital market which is built and operated by KOSCOM. It consists of the Order Line which connects the Member's FEP system to the KRX Matching Engine and the Market Data Line which delivers market data.

｜FEP System｜

"FEP (Front End Processor) System" refers to a Member's interfacing system to KRX. The Member uses it to connect with the KRX Matching Engine. FEP System routes the order received from Buy-Side to KRX Matching Engine.

｜Member｜

"Member" refers to a member of KRX. The Member has to obtain a

license to engage in the investment trading or investment brokerage business pursuant to the Capital Market and Financial Investment Business Act.

| KRX |

"Korea Exchange (KRX)" is the sole exchange for the listing and trading of stocks, bonds and derivatives in Korea.

| Derivatives |

"Derivatives" refers to KRX derivatives products, e.g., KOSPI200 Futures and Options, Single Stock Futures and Options, KTB Futures, USD Futures and Options, Gold Futures, etc.

| Network Service Provider |

"Network Service Provider" refers to an international telecom company which builds a PoP within Busan IDC. It provides Busan IDC Users with international private leased circuits which connect Busan IDC to a specific location overseas.

| PoP |

"PoP (Point of Presence)" is the point at which two or more different networks or communication devices build a connection with each other. It can consist of routers, switches, servers and other data communication devices.

| Hosting Service Provider |

"Hosting Service Provider" refers to a User who rents a Cage and hosts its customer within the Cage space.

| Buy-Side |

"Buy-Side" refers to a firm which installs its own trading server within Busan IDC in order to route orders to the Member's FEP System.

| User |

"User" refers to any market participant that receives Busan IDC services directly or indirectly from KOSCOM. User can include Member, Buy-Side, Network Service Provider and Hosting Service Provider.

| X-Connect |

"X-Connect" refers to circuit connection service of Busan IDC internal section.

| KOSCOM Communication Rack |

"KOSCOM Communication Rack" is the facility on which KOSCOM's communication equipment is installed in order to provide Users with direct connection to the KRX Derivatives Matching Engine or to various domestic and overseas regions.

| Busan Derivatives Market Data |

"Busan Derivatives Market Data" is the market data for Derivatives which is distributed directly from the KRX Derivatives Matching Engine in Busan.

| Seoul Derivatives Market Data |

"Seoul Derivatives Market Data" is the market data for Derivatives which is distributed from the KRX Market Data Distribution System in Seoul.

3. Busan IDC Service List

Busan IDC provides a range of services for Users.

Category	Provided Service		Service Details
Server Room	**Space Provision Service**		Cage & Rack with power
	Monitoring Service		24X365 Real-time Monitoring Real-time Reporting Access Control & Monitoring
Net Work	**Stock-Net Service**	**Order Line**	Connectivity to the KRX Matching Engine
		Market Data Line	Connectivity to the KRX Market Data Distribution System, or to the KRX Derivatives Matching Engine
	Domestic Connectivity Service		DPLC (Domestic Private Leased Circuit)
	International Connectivity Service		IPLC (International Private Leased Circuit)
	X-Connect Service		Cross Connect between Cages and Racks
Other	**Timing Service**		NTP /GPS Service
	Storage Service		Goods Storage Service such as User's Equipment
	Remote Hands Service		Remote Task Support Service such as Server in User's Cage, Network Cable etc.

4. Server Room Management Policies & Guidelines

1) Server Room Usage Standard

Busan IDC Users must abide by the 「Server Room Usage Standard」.

| Members |

Members should use Cages (in pyeong units or 3.31㎡) that are equipped with security facilities built in accordance with the Regulation on Supervision of Electronic Financial Activities of Financial Service Commission.

- KOSCOM Communication Racks are installed within Members' Cages to provide Stock-Net, DPLC and IPLC.

- The minimum rental unit of Cage is 4pyeong($\fallingdotseq 13.22m^2$) to increase cooling efficiency, to ensure a route for movement of equipment, and to secure an appropriate distance between Users' equipment.

| Hosting Service Provider / Network Service Provider / Buy-Side |

Users other than Members can use Cages (in pyeong units or 3.31㎡) that are equipped with security facilities. Also, they can use Racks which are provided by KOSCOM.

- Buy-Sides may also use Members' Cages or Hosting Service Providers' Cages.

- The minimum rental unit of Cage is 4pyeong($\fallingdotseq 13.22m^2$) to increase cooling efficiency, to ensure a route for movement of equipment, and to secure an appropriate distance between Users' equipment.

2) Hosting Usage Standard

Hosting Service Providers and Buy-Sides who use Hosting Service Providers' Cage space must abide by the 「Hosting Usage Standard」.

| Guideline Notice |

Hosting Service Providers must notify and confirm their customers about the 「Busan IDC Service Usage Guidelines」.

| Participation in the Korean capital market |

Buy-Sides can participate in the Korean capital market by routing orders to the KRX Matching Engines through accredited Members.

| Regulations |

Users who use KRX Market Data must abide by the relevant laws and regulations for Members.

3) Hosting Status Reporting Standard

Busan IDC Hosting Service Providers and their customers must abide by the 「Hosting Status Reporting Standard」.

| Reporting Subject |

Hosting Service Providers must report the list of all their customers to KOSCOM.

- Use of the list of reported customers will be strictly limited to auditing conducted by KRX and supervisory agencies including Financial Supervisory Service. This information will not in any way be used for any commercial purposes.

| Reporting Format |

Hosting Service Providers are required to provide a quarterly report of all their customers within their footprint. The report must be submitted by the first business day of January, April, July and October of each year to DC_Opers@koscom.co.kr.

- The reporting format is as follows, and it must be prepared and submitted as an Excel File.

[Report Date : dd-mm-yy]

Customer Name	Installation Date	Rack Location
AAA.Inc	01-Dec-15	#R01
BBB.Inc		

4) Equipment Installation Standard

Busan IDC Users must abide by the「Equipment Installation Standard」, and they should install their equipment (e.g., servers, switches, etc.) within the designated area to secure the stable operation and protection of Busan IDC's facilities.

| Access Prohibition |

Users must utilize the equipment provided by KOSCOM with the duty of care of a good manager, and cannot relocate, disassemble, or demolish the provided equipment without the prior approval of KOSCOM.

- In particular, Users are prohibited from approaching and using the KOSCOM Communication Racks which have been installed within the Cages for the purpose of providing network services such as Stock-Net.

| Electricity Supply |

Busan IDC provides 2~4kW of electricity per Rack. Users must consider this factor when deciding on the number of equipment (e.g., server, switches, etc) to be installed in a Rack.

- If electricity use exceeds 2kW per Rack, Busan IDC may limit electricity use partially in order to provide all Users with a stable supply of electric power.

| Equipment Repositioning |

Busan IDC provides maximum electricity of 4kW per Rack.

- Blade server installation should be done with caution in order to prevent exceeding the maximum power limit of 4kW per Rack.

- If electricity consumption measurements exceed the maximum limit of 4 kW for three consecutive months, KOSCOM can make a request for the equipment to be repositioned. The Users must actively cooperate with this request.

- KOSCOM may request for the Users' equipment to be repositioned in order to increase cooling efficiency and to raise the efficiency of electricity operation. Users must actively cooperate with this request.

5) Rack Placement Standard

Busan IDC Users must abide by the 「Rack Placement Standard」 to increase cooling efficiency, to ensure a route for movement of equipment, and to secure an appropriate distance between Users' equipment.

| Rack Height |

The maximum height possible for racks to be installed at Busan IDC is 2,000mm.

| Rack Position |

The rack placement standards are as follows depending on each position:

- On the door-side: At least two (2) access floors have to be left empty

- On the side that has surface contact with another User's Cage: At least one (1) access floor has to be left empty

- On the front side of a rack (Cold Aisle): At least two (2) access floors have to be left empty

- On the rear side of a rack (Hot Aisle): At least one (1) access floor has to be left empty

- If a row contains more than six (6) racks: At least one (1) access floor has to be left empty

[Example] Rack Installation Guideline
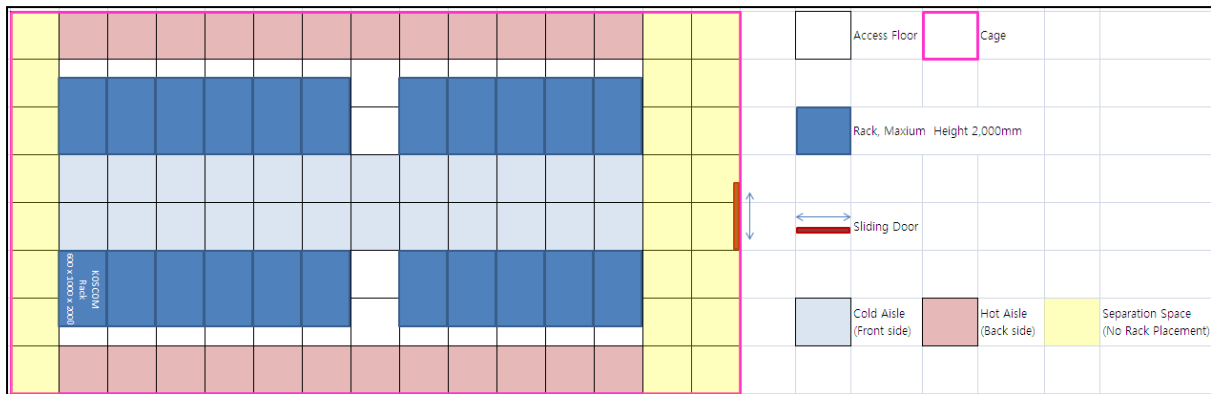
6) Power Supply Standard

Busan IDC Users must abide by the 「Power Supply Standard」.

│ Power Type │

Busan IDC provides electricity of single phase 220V(20A), single phase 220V(30A) and three phase 380V(30A) for the Racks.

- Busan IDC provides two power lines for the Rack, and the panel boards for the power lines are operated independently of each other.

│ Receptacle │

Busan IDC basically provides the 2-pin receptacle of single phase 220V(16A) for the Rack.

- Users shall make preparations in the case of a special receptacle; e.g., single phase 220V(20A), three phase 380V(30A), etc.

- KOSCOM will carry out the work for the connection between power cables of board panel and special receptacles.

- The work for the connection between board panels and Racks must be conducted in the presence of KOSCOM.

7) Server Room Maintenance Standard

Busan IDC Users must abide by the 「Server Room Maintenance Standard」 for the stable infrastructure operation.

| Hazardous Material |
Bringing in and leaving unattended combustibles (e.g., boxes, wrapping material, cables, plastic, wooden material etc) or magnetic material inside the Cages is prohibited.

| Arrangement |
Users should keep all the equipment that will be installed within their Cages in good order to increase cooling efficiency.

| Photography |
It is prohibited to take photographs within the Busan IDC premises.

5. Network Management Policies & Guidelines

KOSCOM directly and indirectly manages every circuit of Busan IDC for the sake of stable operation, ensuring fairness and preventing breach of security.

1) Stock-Net Service Usage Standard

Users must abide by the 「Stock-Net Service Usage Standard」.

│Stock-Net Order Line│

Only Members are granted direct access to the KRX Matching Engines, and they may utilize the Order Line as follows:

- Once the application for an Order Line is submitted to and approved by KRX, then KOSCOM, the operator of Stock-Net, will proceed with the Order Line installation.

- More details about the type of Order Lines and how to apply for the Order Lines can be found at the KRX Homepage (https://global.krx.co.kr); you may refer to the pages in the order of ˊRegulationsˎ → ˊGeneral Regulationsˎ → ˊGuideline on Connection to Member Systemˎ.

│Stock-Net Market Data Line│

Users may utilize the Market Data Line through the "Market Data Use Contract" signed with KOSCOM.

- Please submit any inquiries regarding the application for the Market Data Lines to the Contact Point which can be found at the KOSCOM 'Market Data" Homepage (https://data.koscom.co.kr) → ˊCustomer Serviceˎ → ˊContact Pointˎ.

│Fairness│

The cables that connect between the Stock-Net backbone and the KOSCOM Communication Racks in Members' Cages are equal lengths for all Members, and the cables use different routes for the connections.

2) DPLC Service Usage Standard

Users must abide by the 「DPLC Service Usage Standard」.

│ **Application for Service** │

Users who need line connections with domestic regions outside of Busan IDC may use the DPLC Service as follows:

- Only Users can apply for the DPLC Service, and the Users must apply directly to KOSCOM for the DPLC service.

- Users who need DPLC Service must apply to KOSCOM for the service at least two (2) weeks prior to the service start date. However, in case of high-bandwidth line(over 100Mbps) and line connected to a specific building(business area of telcos : youido IFC etc), it is possible to proceed by prior consultation.

- Once the application for DPLC Service is submitted to KOSCOM, KOSCOM will proceed with the DPLC installation within the agreed time frame.

3) IPLC Service Usage Standard

Users must abide by the 「IPLC Service Usage Standard」.

│ **Application for Service** │

Users who need line connections with overseas regions outside of Busan IDC may use the IPLC Service as follows:

- Only Users can apply for the IPLC Service, and the Users must apply directly to KOSCOM for the IPLC Service.
  ※Users will be allowed to apply to International Carriers for IPLC Services. However, Network Service Providers must apply directly to KOSCOM for the line connecting from Busan IDC to the outside. (to be implemented after May 1st, 2020).

- If the Buy-Sides use the Cages of the Hosting Service Providers who are able to directly provide an IPLC to its customers, the Buy-Sides may

also apply to their Hosting Service Provider for an IPLC (To be deleted after May 1st, 2020).

- Only Network Service Providers who build PoPs in Busan IDC can provide IPLC to Users.

- Once the application for IPLC Service is submitted to KOSCOM, KOSCOM will proceed with the IPLC installation within the agreed time frame. (the word "KOSCOM" is to be deleted after May 1st, 2020).

4) X-Connect Service Usage Standard

Users must abide by the 「X-Connect Service Usage Standard」.

｜Application for Service｜

When connection between the Cages of User is needed, the User can use the X-Connect service as follows:

- Only Users can apply for the X-Connect Service, and the Users must apply directly to KOSCOM for the X-Connect Service.

- Buy-Sides who use the Cages of a Hosting Service Providers may also apply to their Hosting Service Providers for the X-Connect Service.

- X-Connect Service is only provided via optical fiber cables and the cables are of equal lengths.

- Only X-Connect Service between Members and Buy-Sides for transmitting orders, and X-Connect Service between same Buy-Side's equipment for management are permitted.

- X-connect Service between Members is prohibited in order to prevent it from hindering fair trade order.

- Users who need X-Connect Service must apply to KOSCOM for the service at least six (6) weeks prior to the service start date.

- Once the application for X-Connect Service is submitted to KOSCOM, KOSCOM will proceed with the X-Connect installation within the agreed

time frame.

| Server Location |

Buy-sides must place their trading server within Members' Cages.

- However, if a Buy-Side installs only one trading server within Busan IDC and connects its trading server with only one Member's Cage, the Buy-Side may place its server within the Hosting Service Provider's Cage.

6. Security Policies & Guidelines

1) Security Policies

Users must abide by the 「Security Policies」.

｜Security Breach Prohibition｜

Users should not partake in any activity that breaches the security of KOSCOM or of any other Users, or in any activity that unjustly modifies the system resources of KOSCOM or other Users.

- Users should not manipulate any equipment belonging to KOSCOM or to any other User, and should not cause a problem in the service of any other User.

- If a User's action causes a problem in the services of KOSCOM or of any other User, the User is responsible to cover the losses of damages.

｜Actions against Security Breach｜

If KOSCOM notices any form of violation against Busan IDC security policy through server room monitoring, the Users will be notified of the violation and can be requested to take appropriate steps to address the problem.

- If the problem is not corrected even after the user is notified, KOSCOM may make the corrections itself and shall not be responsible for any security breaches or losses incurred by those actions.

2) Access Control Standard

Users must abide by the 「Access Control Standard」.

｜Designation of Authorized Persons｜

Users must notify KOSCOM of the person in charge of the tasks (up to three people). If there is a change in personnel, Users should immediately notify KOSCOM via telephone or e-mail.

| Access Time |

Users can enter and exit Busan IDC at any time other than trading hours (08:00~16:00).

- Users may enter and exit Busan IDC during trading hours (08:00~16:00) if they are under unavoidable circumstances (e.g., occurrence of computer problems)

- In this case, Users should receive the emergency access approval of the Busan IDC manager.

| Reservation |

Users who want to access Busan IDC need to make a reservation by e-mail in advance.

- When making an advance reservation, it is necessary to provide details of the appointed personnel including: name of affiliated company, name, date of birth (first 6 digits of the passport number, in case of a foreigner) access date, access reason, phone number, etc.

- If emergency access is required due to causes such as to resolve the computer problems, Users may enter and exit without advanced reservation.

- In this case, Users should receive the emergency access approval of the Busan IDC manager.

| Access Control |

KOSCOM operates an Access Control System for the sake of security and safety within Busan IDC premises.

- Visitors must abide by Busan IDC's access procedure, including wearing a visitor's pass for identification purposes.

- The persons accessing the premises must provide identification to prove that they are the reserved persons, and must change into slippers before entering server room.

- Visitors are not allowed to bring personal items (mobile phones, bags, notebooks, etc.) when accessing the cage and those shall be kept in a

locker installed at the information desk. However, pre-authorized items can be brought in

3) Equipment Entry & Exit Standard

Users must abide by the 「Equipment Entry & Exit Standard」.

| Bringing in Equipment |

When bringing in equipment, only the contents are allowed to be brought in due to the nature of the common data center. Also, no related equipment or equipment accessories should be left unattended.

- All package unboxing must be done in the hallway outside the server room and only the equipment is allowed to be brought in.

- The leftover boxes should be put in the designated area.

- Any other waste should be packed into a recycling bag and organized in the designated area.

| Entry & Exit Time |

Users can bring in and take out their equipment at any time other than trading hours (08:00~16:00).

- Users may bring in and take out their equipment during trading hours (08:00~16:00) if the Users are under unavoidable circumstances (e.g., occurrence of computer problems)

- In this case, Users should receive approval for the emergency entry and exit of equipment from the Busan IDC manager.

| Prior Notification |

Users must notify the Busan IDC of the entry and exit of equipment beforehand.

- The notification must include: User's name, equipment model, and quantity of equipment etc.

| Entry & Exit Record |

The Busan IDC manager checks the User's equipment and makes a record in the access ledger for all equipment at entry and exit.

| Cancellation of a Contract |

Users who cancel their contract must remove their equipment from the premises within fifteen (15) days (including the day of cancellation).

- The Users must pay all outstanding payments (including the monthly charges up to the date of cancellation, cancellation penalty fee, etc) in full before date of user equipment removal.

- If the Users do not remove their equipment within fifteen (15) days of the cancellation date, KOSCOM will notify the Users regarding the removal and movement of the Users' equipment and move that equipment to the designated area.

- Even if the Users do not reply to the notification or are unreachable, KOSCOM will proceed with the removal and movement procedure.

- The Users may not claim for damages towards losses incurred due to the removal and movement of the Users' equipment.

- If the Users have not taken out their equipment within fifteen (15) days from the date of cancellation (including the date of cancellation), the Users are obliged to pay for the storage fees that arise from the following day of the cancellation day to the actual date of removal. In this case, the storage fee shall be calculated on a daily basis based on the monthly server room usage fee.

- If the equipment storage period is longer than three (3) months, KOSCOM may sell or take over the ownership of the equipment arbitrarily.

7. Other Policies & Guidelines

1) Parcel Receipt Service Usage Standard

KOSCOM offers Parcel Receipt Service with consideration for the distinct characteristics of the area. Users must abide by the 「Parcel Receipt Service Standard」.

| Prior Notification |

Users must notify the Busan IDC manager of the parcel at least one (1) week prior to arrival.

- User's name
- Product information (details, quantity)
- Product weight
- Storage schedule and work schedule

| Parcel Delivery |

KOSCOM hands over the parcels to the Users from the temporary storage area within Busan IDC.

- KOSCOM is not responsible for any loss or damage of parcels, and does not support carrying of the parcels.

| Storing the Parcels |

KOSCOM operates a temporary storage area within the Busan IDC premises to store the parcels.

- Parcels cannot remain in temporary storage area for longer than temporary storage term of fifteen (15) days.

- Users' parcels that have exceeded the temporary storage term will be returned to the Users' address on a paid-on-delivery basis, after prior notification is given to the Users.

│ Limitations │

KOSCOM may place a limit on Parcel Receipt Service in the following cases:

- Please note that parcels that arrive without notification, or parcels with prior notification but without receiving User specified, are be refused.

- Parcels must be scheduled to arrive during business hours of working days (Monday~ Friday, 9.00am~5.00pm).

- If a parcel needs to be delivered on a non-business day due to emergency situations such as to resolve a problem, it must be discussed with the Busan IDC manager.

- Large, heavy, highly important, or fragile parcels shall be received in the presence of the representative of the User, and the User shall carry such parcels on itself.

2) Time Synchronization Service Usage Standard

Users who directly contract with KOSCOM can use Time Synchronization (NTP/PTP/GPS) Service. Users must abide by the 「Time Synchronization Service Usage Standard」.

│ NTP Service │

NTP(Network Time Protocol) Service is provided free of charge.

- Busan IDC provides one (1) port of the NTP server per User.

│ GPS Service │

GPS(Global Positioning Service) Service is provided for a charge.

- GPS(Global Positioning Service) refers to a service that connects coaxial cable between the GPS signal distributor and the User's time server, and it provides the signal distributor supply/installation and coaxial cable pulling construction.

- Busan IDC provides one (1) port of GPS signal distributor per User.

| Application Period |
Users who need Time Synchronization Service must apply to KOSCOM for the service at least two (2) weeks prior to the service start date.

3) Storage Service Usage Standard

Users who directly contract with KOSCOM can use Storage Service. Users must abide by the「Storage Service Usage Standard」.

| Service Application |
The use of Storage service shall be initiated on the date requested by the official document.

- It is charged in monthly basis from the starting date of User, but in case the monthly unit isn't met, it is calculated by the number of days.

| Service Usage Standard |
User is responsible for the management of the storage and export of the User's goods in the assigned storage room.

- In order to prevent fire, flammable materials such as oil, explosives, etc. shall not be stored in the User's storage room.

- The management of the good in the storage room is directly managed by User, and KOSCOM does not carry out the entry and exit history management of the said storage room.
- KOSCOM only provides security service such as access control based on '6. Security Policies & Guidelines'.

4) Remote Hands Service Usage Standard

Users who directly contract with KOSCOM can use Remote Hands Service. Users must abide by the 「Remote Hands Service Usage Standard」.

| Service Application |

Remote Hands service applications are serviced on a pre-planned basis, except in emergencies.

- Remote Hands service application form shall be completed without omission, and at least one day prior to the start date of the relevant work, shall go through the process of sending and receiving email to and from the Busan IDC person in charge.

| Emergency |

Service request that is deemed to be in the event of an emergency is processed in consultation with the Busan IDC person in charge, and the details of the work and the working hours shall be PTP.