



# **TANK INVENTORY MANAGEMENT SOFTWARE**

**Network Version  
For Oil Company**

**User Manual**

**Zhengzhou Windbell Measurement and Control Technology Co., Ltd**

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## 1 Project background

Along with the information management of retail petrol station in recent years, most of the petrol station starts to use Automatic Tank level Gauging system (ATGs), which have fully instead of stick rod in daily tank measurement and management. Station managers or owners can easily know well the real inventory in underground tanks, and take fast and flexible solutions to market changes by information analysis tools like sales forecasting.

The demand for ATGs remote networks and more comprehensive data collection increasing rapidly since more and more users appreciates the benefits. They want to collect every tanks data from every station to head-office, they also want to handle the fueling data in forecourt and purchase order of delivery together in this system, for centralized management and source coordination, enhance efficient and save cost.

On this demand background, Windbell design this software to satisfy.

## 2 Overall function

This system collects tank inventory data by probe, every tank's real-time data can be Monitored at site office easily; and also upload to head-office for centralized management, Charge manager & owners could easily get the tank's detail information in each stations, like inventory data, delivery data and shift data.

### 2.1 Station client

- ✧ Monitor every tank's inventory data in real-time
- ✧ Automatic alarm and generates alarm record
- ✧ Support shift operation, and generate shift record
- ✧ Automatically generate delivery report
- ✧ Support sale & inventory profit & loss report if input pump data of each nozzle
- ✧ Support delivery profit & loss if input data in delivery order

- ◇ All data uploaded to server automatically with short interval as 1 minute

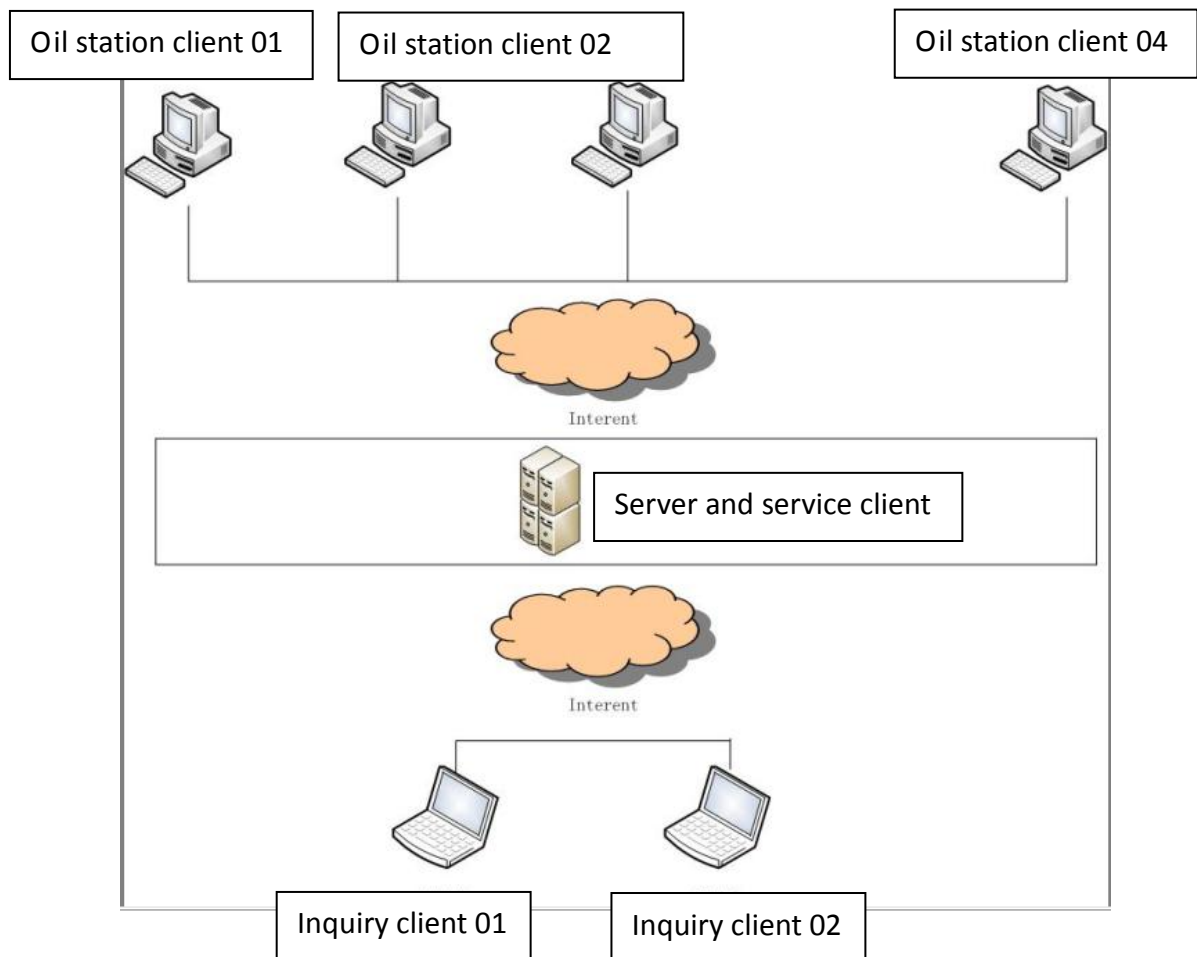
## 2.2 Inquiry client function

- ◇ Monitoring each station's inventory data in real-time
- ◇ Access control that each district manager only inquiry its own stations' info.
- ◇ Search reports by districts / stations

## 3 System framework

System adopts three layers C/S framework to realize functions.

Please see the pictures at below



Picture 01

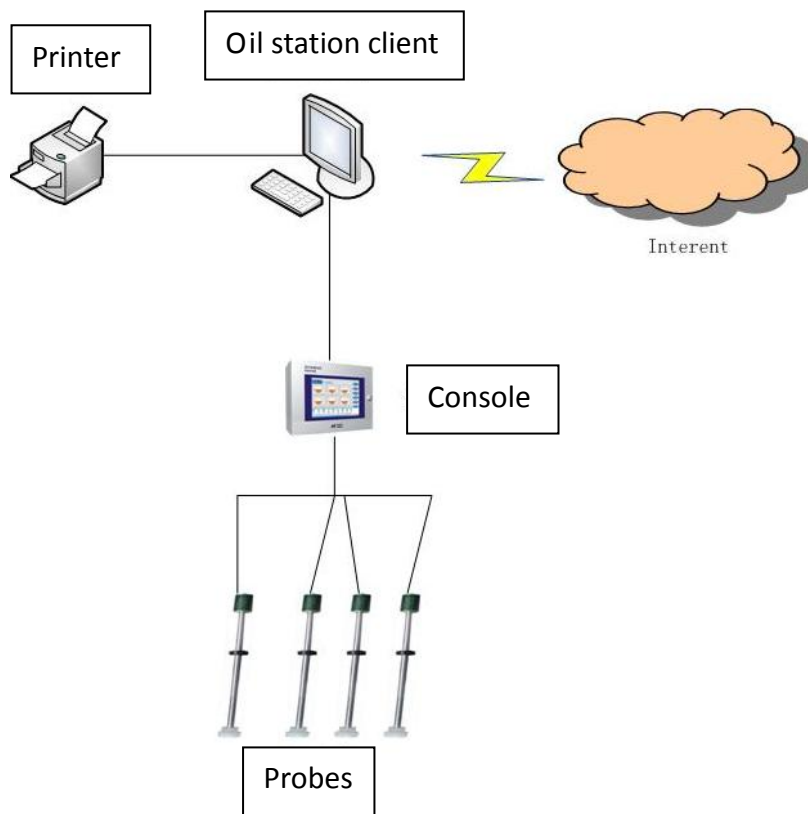
## 4 System composition

System is composed of three parts; they are oil station client A, socket server and service client, Inquiry client C.

### 4.1 Oil station client

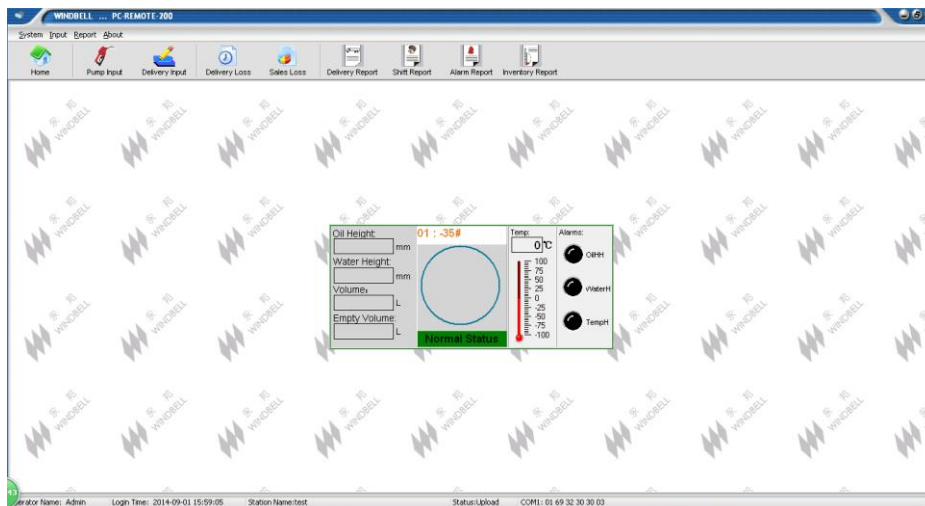
Oil station client is installed at site computer, to collect tanks' inventory Data like product level, water level and temperature, realize local monitoring. It is the base of remote monitoring because it will upload data to head-office, Upload about each 1 minute.

✧ Framework as below



Picture 02

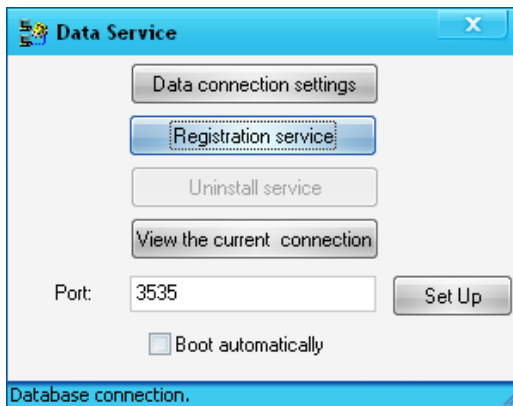
✧ Home page



Picture 03

### 4.2 Socket server and service client

Socket server and service client is installed at head-office or any suitable Location where have fixed public IP address. It receives the data uploaded from oil station client, data analysis and storage and offer Socket service to inquiry client. Home page of Socket sever as below

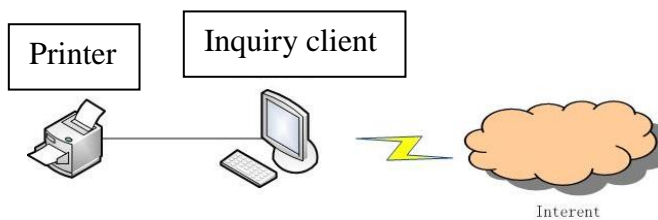


Picture 04

### 4.3 Inquiry client

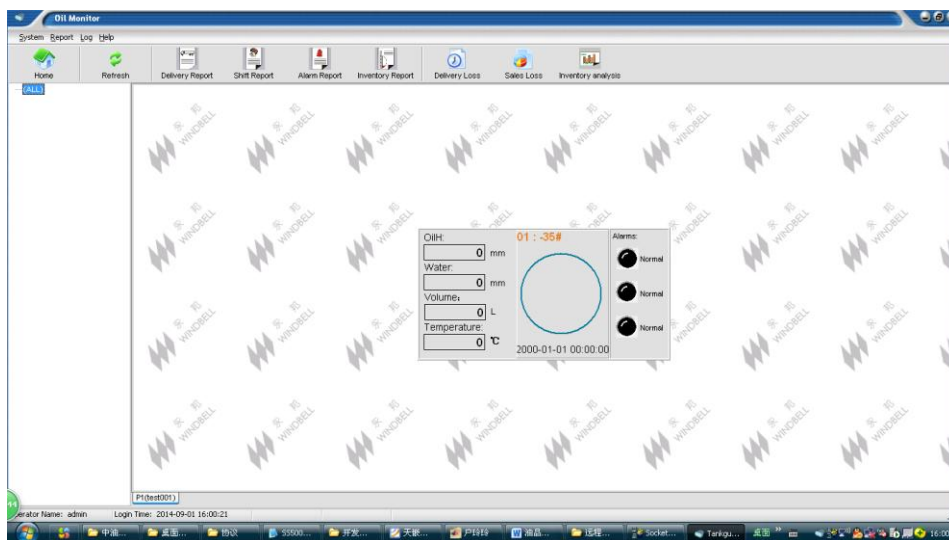
It is no need to install inquiry client, just insert U-disk into computer/notebook, open inquiry client software to see detail info of tanks.

✧ Framework



Picture 05

✧ Home page



Picture 06

✧ Functions

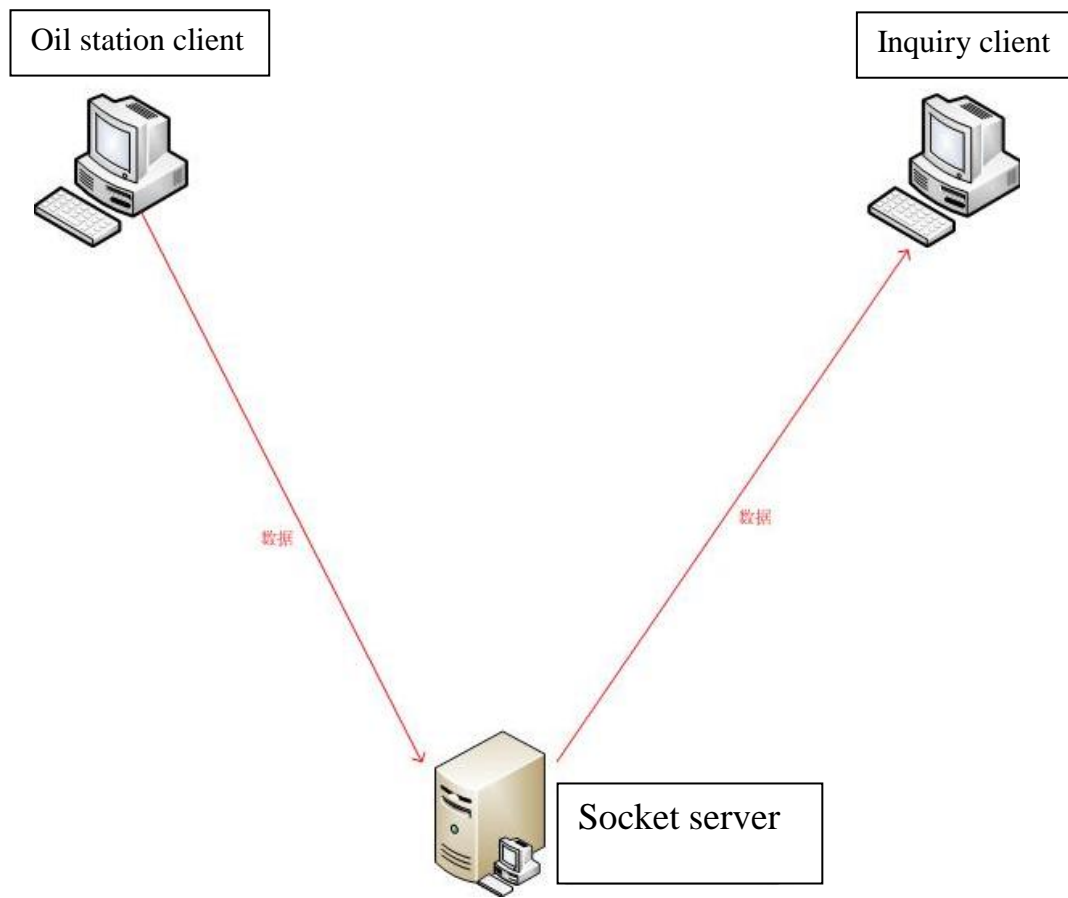
- Monitoring all the tanks in each station status, including product level, water level, volume, alarm and average temperature.
- Arborescence inquiry. If user wants to see one station's inventory status, choose this tank at the left of home page, the detail information will displayed at the right of page.
- User can see delivery report, shift report, alarm report and inventory report of each tank in his authority.

## 5 Communication principle

Working condition: Head-office location must have fixed public IP address.

Oil station client A and inquiry client B communicates with Server by the fixed public IP. Communication type is Socket communication.

◇ Framework



Picture 07

## 6 System security and extension

### 6.1 System security

System adopts encryption to ensure the security of data transmission at network.

### 6.2 System extension

System also reserved for future extension, to integrate with other system.



## 7 System requirement

### 7.1 Oil station client

✧ Software working condition

| S/N | Name             | Model      | Remark                        |
|-----|------------------|------------|-------------------------------|
| 1   | Operation system | Win2000/XP |                               |
| 2   | Desktop database | Msde2000   | Installation program built-in |

✧ Hardware

| Name     | Processor(CPU)   | Internal memory(RAM) | Disk (HD)     |
|----------|------------------|----------------------|---------------|
| Computer | P4 1.8 or better | 512M or bigger       | 40G or bigger |
|          |                  |                      |               |

✧ Network

| Network type                | Network speed     | Remark |
|-----------------------------|-------------------|--------|
| Dial / Broadband / Wireless | 128kb/s or faster |        |

### 7.2 Socket server and service client

✧ Software working condition

| S/N | Name             | Model           | Remark |
|-----|------------------|-----------------|--------|
| 1   | Operation system | Win2003 Server  |        |
| 2   | Database         | Sql Server 2000 |        |

✧ Hardware

| Name   | Processor(CPU)    | Internal memory(RAM) | Disk(HD)         |
|--------|-------------------|----------------------|------------------|
| Server | 2*Dual Core 2.66G | 4G DDR2 ECC RAM      | 8..* 70G SCSI HD |

✧ Network

| Network type | Network speed      | Remark |
|--------------|--------------------|--------|
| Broadband    | 1024kb/s or faster |        |

**7.3 Inquiry client**

## ✧ Software working condition

| S/N | Name             | Model      | Remark |
|-----|------------------|------------|--------|
| 1   | Operation system | Win2000/XP |        |

## ✧ Hardware

| Name                | Processor(CPU)   | Internal memory (RAM) | Disk (HD)     |
|---------------------|------------------|-----------------------|---------------|
| Computer / Notebook | P4 1.8 or better | 512M or bigger        | 40G or bigger |

## ✧ Network

| Network type                | Network speed     | Remark |
|-----------------------------|-------------------|--------|
| Dial / Broadband / Wireless | 128kb/s or faster |        |

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