

# MYFACTORY PROTOCOL DOCUMENT

Prepared by: Fadıl Şahin

## COMPONENTS

In this protocol, there are three components works in a communication. These are factoryserver, userclient and workcenter. Factoryserver listens 9999 port and receives tcp messages on this port. Clients can listen on any port.

## MESSAGE TYPES

MESSAGE TYPE	CONTENT
LOGIN	"LOGIN "USERNAME" "PASSWORD"\n"
LOG	"LOG\n"
NLOG	"NLOG\n"
OP	"OP "OPCODE"\n"[PARAMS"\n"]"
RESULT	[RESULT-FIELDS]" \n"
RESULTSET	[ITEM-FIELDS" "]"COUNT\n"[RESULT-FIELDS"\n"] [RESULT-FIELDS"\n"]...
CON	"CON "NAME" "WORKTYPE" "SPEED"\n"
NEW	"NEW "UNITAMOUNT"\n"
DONE	"DONE\n"
ERROR	"ERROR\n"
ILLEGAL	"ILLEGAL\n"
CLOSE	"CLOSE\n"

In message contents, parts in brackets are optional. According to situation, they can be empty. Parts in double quotes are constant parts that do not change and written directly to the message. Ellipsis show that repeating part of the message can continue. Other parts must be variable defined like below. Variables can consist of other variables and it will be shown later.

## VARIABLES

**USERNAME:** Contains no space and end line characters. It is username of userclient component.

**PASSWORD:** Contains no space and end line characters. It is password of userclient component.

**OPCODE:** It is integer value. It is code of the operation will be performed.

**PARAMS:** Contains no end line character. It is separated data with spaces is needed for the operation.

**RESULT-FIELDS:** Contains no end line character. It is separated result objects.

**ITEM-FIELDS:** Contains no end line character. When a result returned for a specific object, separated object fields with spaces is replaced with this.

**NAME:** Contains no space and end line characters. It is name of the workcenter component.

**WORKTYPE:** Contains no space and end line characters. It is type of the work performed by workcenter.

**SPEED:** Contains no space and end line characters. It is speed of performing a job of workcenter and integer value.

**ID:** Contains no space and end line characters. It is identification key of objects recorded in factoryserver component and integer value.

**COUNT:** Contains no space and end line characters. It indicates how many result field exists in a result list and integer value.

**STATUS:** Contains no space and end line characters. It is status of workcenter component. It is 'EMPTY' or 'BUSY' values.

**ACTIVEORDERID:** Contains no space and end line characters. It is identification key for assigned job to the workcenter.

**UNITAMOUNT:** Contains no space and end line characters. It is unit amount of a job order.

## **LOGIN MESSAGE**

A userclient sends this message type to connect a factoryserver. After this operation, userclient is logged in factoryserver component, can perform operations defined in factoryserver and an id key is assigned it.

LOGIN user 123

## LOG MESSAGE

Factoryserver inform the user which sends login message about it is logged in successfully and the user was registered.

LOG

## NLOG MESSAGE

Factoryserver inform the user which sends login message about the login is unsuccessful and the user was not registered.

NLOG

## OP MESSAGE

A message type to perform an operation in factoryserver and is send by userclient component. Opcode value is between 1-4 and it is used to select the operation. Params is parameters needed to perform selected operation in factoryserver.

### OPERATION TYPES

**“OP 1\n”WORKTYPE”\n”**

Operation 1 is used to request workcenter list from factoryserver. WORKTYPE parameter is used to tell factoryserver which types will be in the list and does not contain space and end line characters.

OP 1 cut

**“OP 2\n”ID”\n”**

Operation 2 is used to request workcenter status and jobs finished from factoryserver. ID parameter is used to tell factoryserver which workcenter's data is requested and does not contain space and end line characters.

OP 2 24

**“OP 3\n”**

Operation 3 is used to request job list separated (ordered) by type which are not assigned for a workcenter to do.

OP 3

**“OP 4\n”WORKTYPE” “UNITAMOUNT”\n”**

Operation 4 is used to generate new jobs saved in factoryserver. WORKTYPE parameter indicates job type and UNITAMOUNT parameter indicates the job includes how many units. New job order is generated with these data and these parameters do not contain space and end line characters.

OP 4 washing 40

### **RESULT MESSAGE**

It is the response message sent after userclient op messages that is wanted to be done by factoryserver. It is not a list but one line data. The message sent when operation 2 and 4 message is received.

### **OPERATION 2**

“-1\n”

For the workcenter whose ID is sent, if the workcenter is not found in records, the response message type is RESULT type.

### **OPERATION 4**

ID\n”

It is used to sent ID value for the generated job.

532

### **RESULTSET MESSAGE**

It is the response message sent after userclient op messages that is wanted to be done by factoryserver. It is a list of result data. The message sent when operation 1,2 and 3 message received.

### **OPERATION 1**

COUNT\n”ID” “NAME” “WORKTYPE” “SPEED” “STATUS” “ACTIVEORDERID”\n”...

There are as many workcenter records as the count value.

3

1 wc1 a 2 EMPTY -1

52 wc2 b 1 BUSY 4242

35 wc3 a 1 EMPTY -1

### **OPERASYON 2**

ID" "NAME" "STATUS" "COUNT"\n"ID" "WORKTYPE" "UNITAMOUNT"\n"...

Data in the first line is about to the workcenter has id value and sent to the factoryserver in operation 2 message. In the other lines, job orders done added to the message after the operation.

42 wc1 EMPTY 1  
452 a 4

### **OPERASYON 3**

COUNT"\n"ID" "WORKTYPE" "UNITAMOUNT"\n"...

It lists unassigned job orders up to the COUNT.

3  
1 a 1  
4 a 2  
6 b 5

### **CON MESSAGE**

For a workcenter, its name, type and unitamount is given, a connection is made and an ID key is assigned.

CON wc1 a 4

### **NEW MESSAGE**

It is the message type that is sent to a workcenter by factoryserver and tells amount of the job.

NEW 935

### **DONE MESSAGE**

It is the message type that is sent to a factoryserver by workcenter when it has done its job assigned before.

### **ERROR MESSAGE**

It is the message type that notifies the connection will be closed because of an error occurred on factoryserver.

ERROR

### **ILLEGAL MESSAGE**

It is the message that is sent when a message has unsupported syntax and unknown and unexpected message data.

ILLEGAL

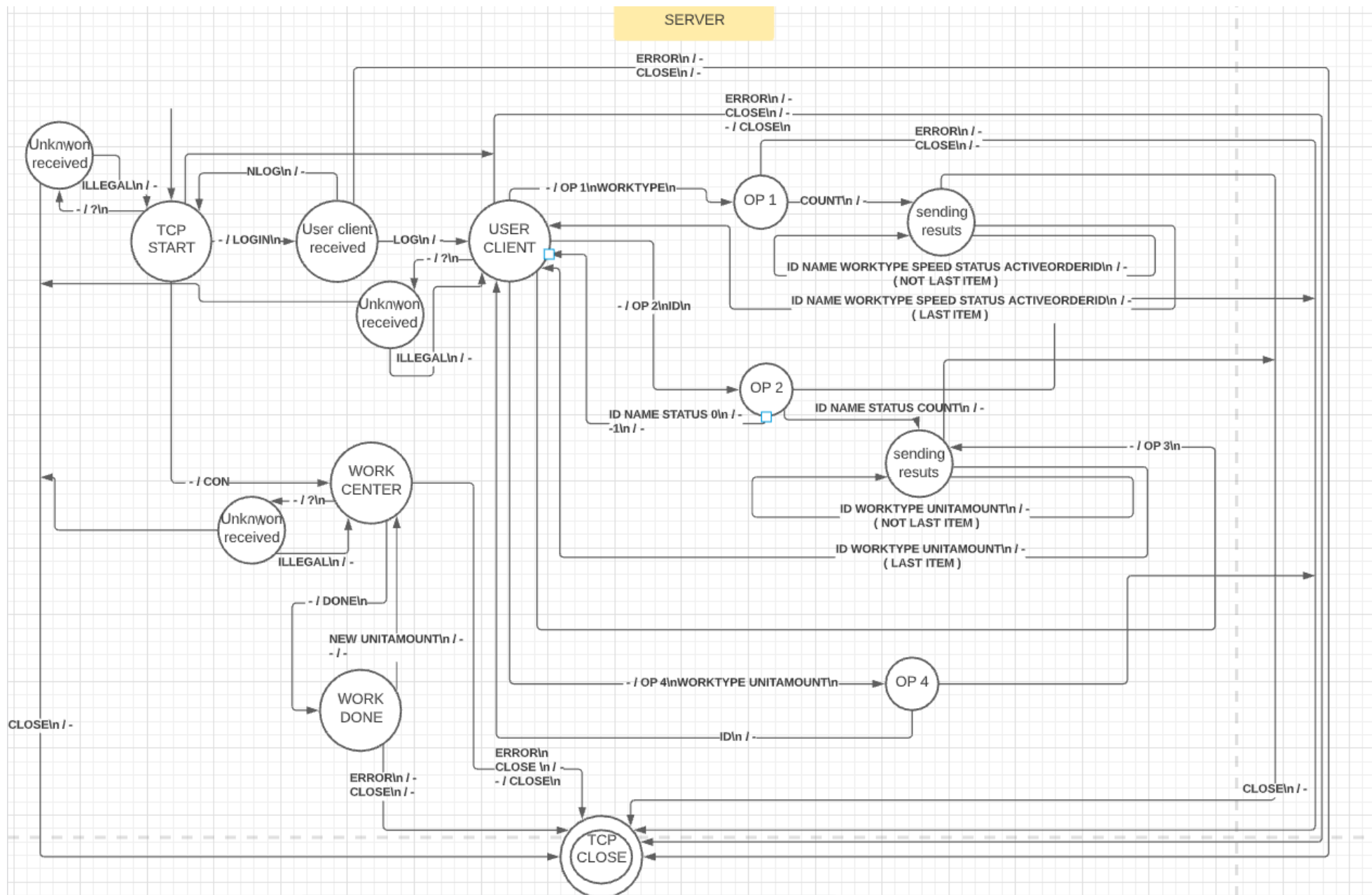
### **CLOSE MESSAGE**

It is the message type that is sent when a component wants to close the connection.

CLOSE

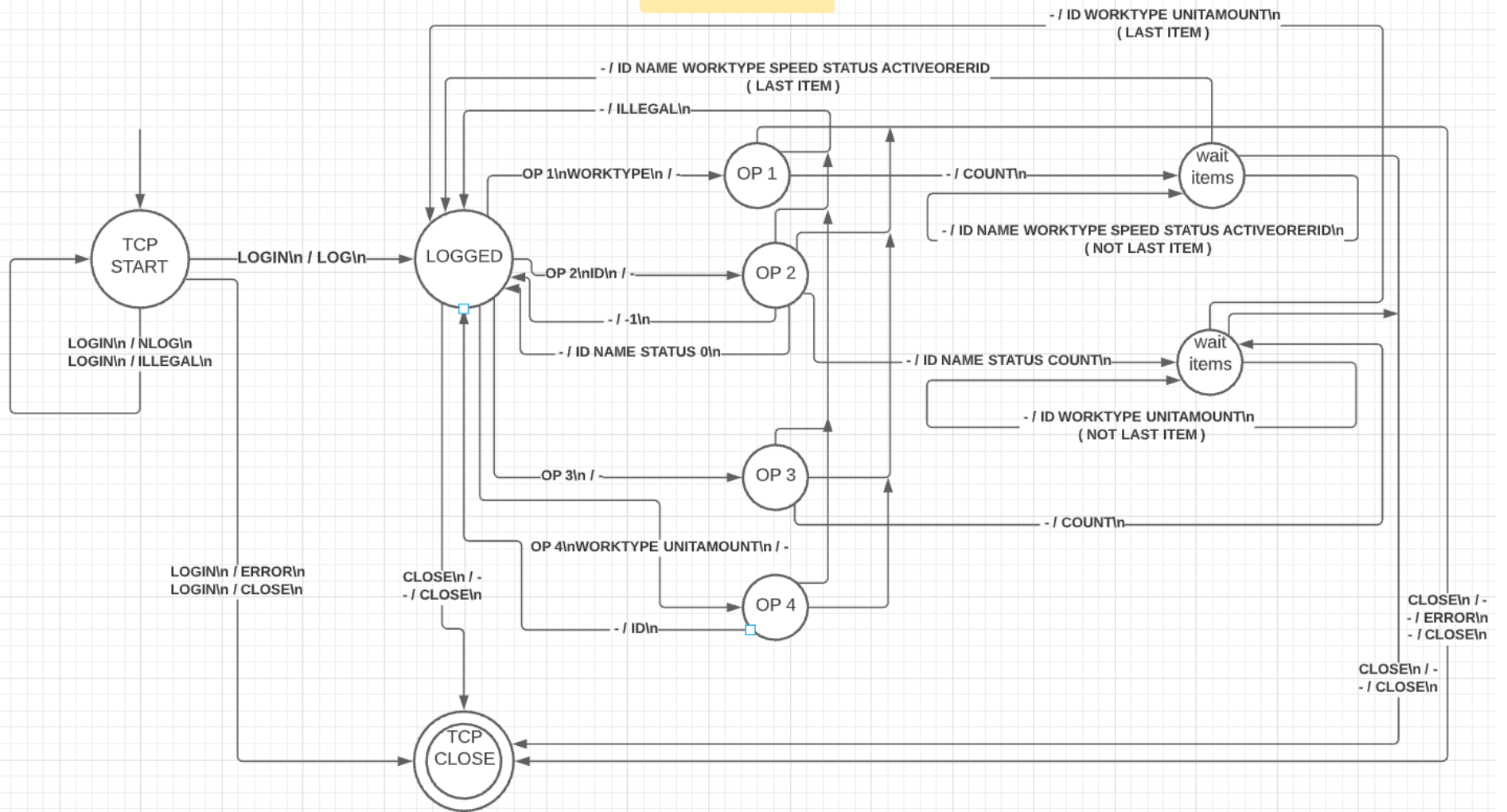
### **FINITE STATE MACHINE DIAGRAM**

The diagrams that show the defined protocol explained in this documentation and how all communication is carried out.





# USER CLIENT



## WORK CENTER

