

Interoperation of the Panasonic TGP600 SIP/DECT Phone System with RingCentral

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The Panasonic TGP600/TPA60 SIP/DECT phone system is a popular phone system used in many manufacturing environments. It will interoperate with RingCentral as a 3rd party phone system. This document describes the implementation.

This phone system is comprised of a base unit with an Ethernet interface which supports PoE and up to 8 handsets.

You should set up a web server to contain and deliver the configuration files and use DHCP to point the phone to the appropriate Master configuration file's URL. The document 'Conditional DHCP Option Delivery Based Upon Vendor ID' should be followed to configure your DHCP server to send Option 66 only to Panasonic phones.

WEB SERVER SETUP

There are 3 configuration files required:

1. Master.cfg – Contains the URLs for the other two config files.
2. Product-KX-TGP600.cfg – Contains all the invariant settings that should be applied to all phones 'across the board'. May be edited to enable/disable various features.
3. Unit-xxxxxxxxxx.cfg – Contains the SIP parameters that change based upon the handset/line configuration. The 'xxxxxxxxxx' is the MAC address of the TGP600 base unit using **lower-case** a-f. The file 'Unit-Master.cfg' is a convenient starting point. There MUST be one correctly named file for each TGP600 base unit.

These files must be present in a web server that is accessible to the TGP600 units as they power up. For the purposes of this document, they will reside in 'http://www.celab.ringcentral.com/pana/'.

You should define DHCP Option 66 as a string parameter pointing to the URL of the Master.cfg configuration file.

PHONE FACTORY RESET

Once everything is configured and ready, you force the base unit to factory reset. This forced factory reset may be accomplished by pressing the 'pairing button' on the side for 45 seconds – until the status light begins rapidly cycling red-amber-green.

Figure 1 - Location of 'pairing button' on hub unit



Upon boot the unit will retrieve the Master configuration file, then the other two files, then it will reboot yet again and again retrieve the files as it completes the boot process.

You may retrieve the following files from the Web server to use as a base for your system:

<https://www.celab.ringcentral.com/pana/Master.cfg>

<https://www.celab.ringcentral.com/pana/Product-KX-TGP600.cfg>

<https://www.celab.ringcentral.com/pana/Unit-Master.cfg>

Master.cfg:

```
# Panasonic SIP Phone Standard Format File #
#
# Provision
CFG_MASTER_FILE_PATH="http://www.celab.ringcentral.com/pana/Master.cfg"
CFG_PRODUCT_FILE_PATH="http://www.celab.ringcentral.com/pana/Product-{MODEL}.cfg"
CFG_STANDARD_FILE_PATH="http://www.celab.ringcentral.com/pana/Unit-{mac}.cfg"
#
# Network
#IP_ADDR_MODE=""
#DHCP_DNS_ENABLE=""
DHCP_HOST_NAME="{MODEL}-{mac}"
#DHCP_OPTION_100="Y"
```

Product-KX-TGP600.cfg:

```
# Panasonic SIP Phone Standard Format File #
#
#####
# These configuration elements apply to ALL devices in the environment #
#####
#
# System
MULTI_NUMBER_ENABLE="Y"
WIDEBAND_AUDIO_ENABLE="N"
CODEC_G722AMR_ENABLE="N"
RTP_KEEP_ENABLE="Y"
FWD_DND_MENU_ENABLE="Y"
BLOCK_ANONY_MENU_ENABLE="Y"
ANONY_CALL_MENU_ENABLE="Y"
TIME_ZONE_SET_ENABLE="Y"
CALL_SETTINGS_MENU_ENABLE="Y"
DISCLOSE_FUNCTION_ENABLE="Y"
NOISE_SUPPRESSOR_ENABLE="Y"
CODEC_VAD_CNG_ENABLE="N"
BLOCK_CID_MENU_ENABLE="Y"
#
# Ethernet
LLDP_ENABLE="Y"
LLDP_INTERVAL="30"
CDP_ENABLE="N"
#CDP_INTERVAL=""
#
# Preprovisioning
OPTION66_ENABLE="Y"
#
# Provisioning
CFG_CYCLIC="Y"
CFG_CYCLIC_INTVL="720"
#
# SIP - Values that are common to all endpoints
SIP_USER_AGENT="Panasonic-{MODEL}/{fwver}-{mac}"

SIP_RGSTR_ADDR_1="sip.ringcentral.com"
SIP_RGSTR_PORT_1="5060"
SIP_SVCDOMAIN_1="sip.ringcentral.com"
SIP_SRC_PORT_1="5060"
DSCP_SIP_1="26"
SIP_DNSSRV_ENA_1="N"
ADD_USER_PHONE_1="Y"
MAX_BREADTH_1="0"

SIP_RGSTR_ADDR_2="sip.ringcentral.com"
SIP_RGSTR_PORT_2="5060"
SIP_SVCDOMAIN_2="sip.ringcentral.com"
```

```

SIP_SRC_PORT_2="5060"
DSCP_SIP_2="26"
SIP_DNSSRV_ENA_2="N"
ADD_USER_PHONE_2="Y"
MAX_BREADTH_2="0"

SIP_RGSTR_ADDR_3="sip.ringcentral.com"
SIP_RGSTR_PORT_3="5060"
SIP_SVCDOMAIN_3="sip.ringcentral.com"
SIP_SRC_PORT_3="5060"
DSCP_SIP_3="26"
SIP_DNSSRV_ENA_3="N"
ADD_USER_PHONE_3="Y"
MAX_BREADTH_3="0"

SIP_RGSTR_ADDR_4="sip.ringcentral.com"
SIP_RGSTR_PORT_4="5060"
SIP_SVCDOMAIN_4="sip.ringcentral.com"
SIP_SRC_PORT_4="5060"
DSCP_SIP_4="26"
SIP_DNSSRV_ENA_4="N"
ADD_USER_PHONE_4="Y"
MAX_BREADTH_4="0"

SIP_RGSTR_ADDR_5="sip.ringcentral.com"
SIP_RGSTR_PORT_5="5060"
SIP_SVCDOMAIN_5="sip.ringcentral.com"
SIP_SRC_PORT_5="5060"
DSCP_SIP_5="26"
SIP_DNSSRV_ENA_5="N"
ADD_USER_PHONE_5="Y"
MAX_BREADTH_5="0"

SIP_RGSTR_ADDR_6="sip.ringcentral.com"
SIP_RGSTR_PORT_6="5060"
SIP_SVCDOMAIN_6="sip.ringcentral.com"
SIP_SRC_PORT_6="5060"
DSCP_SIP_6="26"
SIP_DNSSRV_ENA_6="N"
ADD_USER_PHONE_6="Y"
MAX_BREADTH_6="0"

SIP_RGSTR_ADDR_7="sip.ringcentral.com"
SIP_RGSTR_PORT_7="5060"
SIP_SVCDOMAIN_7="sip.ringcentral.com"
SIP_SRC_PORT_7="5060"
DSCP_SIP_7="26"
SIP_DNSSRV_ENA_7="N"
ADD_USER_PHONE_7="Y"
MAX_BREADTH_7="0"

SIP_RGSTR_ADDR_8="sip.ringcentral.com"
SIP_RGSTR_PORT_8="5060"
SIP_SVCDOMAIN_8="sip.ringcentral.com"
SIP_SRC_PORT_8="5060"
DSCP_SIP_8="26"
SIP_DNSSRV_ENA_8="N"
ADD_USER_PHONE_8="Y"
MAX_BREADTH_8="0"
RFC2543_HOLD_ENABLE="Y"
#
# CODEC - Common to all endpoints
CODEC_G729_PARAM_1=""
CODEC_ENABLE0_1="N"
CODEC_ENABLE1_1="Y"
CODEC_PRIORITY1_1="2"
CODEC_ENABLE2_1="N"
CODEC_ENABLE3_1="N"

```

```
CODEC_ENABLE4_1="Y"
CODEC_PRIORITY1_1="1"
```

```
CODEC_G729_PARAM_2=""
CODEC_ENABLE0_2="N"
CODEC_ENABLE1_2="Y"
CODEC_PRIORITY1_2="2"
CODEC_ENABLE2_2="N"
CODEC_ENABLE3_2="N"
CODEC_ENABLE4_2="Y"
CODEC_PRIORITY1_2="1"
```

```
CODEC_G729_PARAM_3=""
CODEC_ENABLE0_3="N"
CODEC_ENABLE1_3="Y"
CODEC_PRIORITY1_3="2"
CODEC_ENABLE2_3="N"
CODEC_ENABLE3_3="N"
CODEC_ENABLE4_3="Y"
CODEC_PRIORITY1_3="1"
```

```
CODEC_G729_PARAM_4=""
CODEC_ENABLE0_4="N"
CODEC_ENABLE1_4="Y"
CODEC_PRIORITY1_4="2"
CODEC_ENABLE2_4="N"
CODEC_ENABLE3_4="N"
CODEC_ENABLE4_4="Y"
CODEC_PRIORITY1_4="1"
```

```
CODEC_G729_PARAM_5=""
CODEC_ENABLE0_5="N"
CODEC_ENABLE1_5="Y"
CODEC_PRIORITY1_5="2"
CODEC_ENABLE2_5="N"
CODEC_ENABLE3_5="N"
CODEC_ENABLE4_5="Y"
CODEC_PRIORITY1_5="1"
```

```
CODEC_G729_PARAM_6=""
CODEC_ENABLE0_6="N"
CODEC_ENABLE1_6="Y"
CODEC_PRIORITY1_6="2"
CODEC_ENABLE2_6="N"
CODEC_ENABLE3_6="N"
CODEC_ENABLE4_6="Y"
CODEC_PRIORITY1_6="1"
```

```
CODEC_G729_PARAM_7=""
CODEC_ENABLE0_7="N"
CODEC_ENABLE1_7="Y"
CODEC_PRIORITY1_7="2"
CODEC_ENABLE2_7="N"
CODEC_ENABLE3_7="N"
CODEC_ENABLE4_7="Y"
CODEC_PRIORITY1_7="1"
```

```
CODEC_G729_PARAM_8=""
CODEC_ENABLE0_8="N"
CODEC_ENABLE1_8="Y"
CODEC_PRIORITY1_8="2"
CODEC_ENABLE2_8="N"
CODEC_ENABLE3_8="N"
CODEC_ENABLE4_8="Y"
CODEC_PRIORITY1_8="1"
```

```
CODEC_G711_REQ="0"
#
```

DTMF - common to all endpoints, use RFC21833

DTMF_METHOD_1="0"
DTMF_METHOD_2="0"
DTMF_METHOD_3="0"
DTMF_METHOD_4="0"
DTMF_METHOD_5="0"
DTMF_METHOD_6="0"
DTMF_METHOD_7="0"
DTMF_METHOD_8="0"

#

RTP

DSCP_RTP_1="46"
DSCP_RTCP_1="46"
MAX_DELAY_1="20"
MIN_DELAY_1="2"
NOM_DELAY_1="1"
RTCP_ENABLE_1="Y"
RTCP_INTVL_1="15"
RTCP_SEND_BY_SDP_1="1"
RTP_CLOSE_ENABLE_1="N"
RTP_PXR_ENABLE_1="Y"

DSCP_RTP_2="46"
DSCP_RTCP_2="46"
MAX_DELAY_2="20"
MIN_DELAY_2="2"
NOM_DELAY_2="1"
RTCP_ENABLE_2="Y"
RTCP_INTVL_2="15"
RTCP_SEND_BY_SDP_2="1"
RTP_CLOSE_ENABLE_2="N"
RTP_PXR_ENABLE_2="Y"

DSCP_RTP_3="46"
DSCP_RTCP_3="46"
MAX_DELAY_3="20"
MIN_DELAY_3="2"
NOM_DELAY_3="1"
RTCP_ENABLE_3="Y"
RTCP_INTVL_3="15"
RTCP_SEND_BY_SDP_3="1"
RTP_CLOSE_ENABLE_3="N"
RTP_PXR_ENABLE_3="Y"

DSCP_RTP_4="46"
DSCP_RTCP_4="46"
MAX_DELAY_4="20"
MIN_DELAY_4="2"
NOM_DELAY_4="1"
RTCP_ENABLE_4="Y"
RTCP_INTVL_4="15"
RTCP_SEND_BY_SDP_4="1"
RTP_CLOSE_ENABLE_4="N"
RTP_PXR_ENABLE_4="Y"

DSCP_RTP_5="46"
DSCP_RTCP_5="46"
MAX_DELAY_5="20"
MIN_DELAY_5="2"
NOM_DELAY_5="1"
RTCP_ENABLE_5="Y"
RTCP_INTVL_5="15"
RTCP_SEND_BY_SDP_5="1"
RTP_CLOSE_ENABLE_5="N"
RTP_PXR_ENABLE_5="Y"

DSCP_RTP_6="46"
DSCP_RTCP_6="46"

```

MAX_DELAY_6="20"
MIN_DELAY_6="2"
NOM_DELAY_6="1"
RTCP_ENABLE_6="Y"
RTCP_INTVL_6="15"
RTCP_SEND_BY_SDP_6="1"
RTP_CLOSE_ENABLE_6="N"
RTCPXR_ENABLE_6="Y"

DSCP_RTP_7="46"
DSCP_RTCP_7="46"
MAX_DELAY_7="20"
MIN_DELAY_7="2"
NOM_DELAY_7="1"
RTCP_ENABLE_7="Y"
RTCP_INTVL_7="15"
RTCP_SEND_BY_SDP_7="1"
RTP_CLOSE_ENABLE_7="N"
RTCPXR_ENABLE_7="Y"

DSCP_RTP_8="46"
DSCP_RTCP_8="46"
MAX_DELAY_8="20"
MIN_DELAY_8="2"
NOM_DELAY_8="1"
RTCP_ENABLE_8="Y"
RTCP_INTVL_8="15"
RTCP_SEND_BY_SDP_8="1"
RTP_CLOSE_ENABLE_8="N"
RTCPXR_ENABLE_8="Y"

RTP_PORT_MIN="20000"
RTP_PORT_MAX="59998"
#
# TELEPHONE
ONHOOK_TRANSFER_ENABLE="Y"
ONHOOK_HOLD_TRNS_ENABLE="Y"
BLIND_TRANSFER_ENABLE="Y"

```

Unit-Master.cfg:

```

# Panasonic SIP Phone Standard Format File #
#
# Substitutions:
# {PN1-PN8}: Phone Number (DL) lines 1-8
# {AU1-AU8}: Auth ID lines 1-8
# {PW1-PW8}: Password/secret lines 1-8
# {PRX1-PRX8}: OB Proxy lines 1-8
# {PRP1-PRP8}: OB Proxy Port lines 1-8
# {HN1-HN8}: Handset Name handset 1-8
# {DN1-DN8}: Name to send on call line 1-8
#
# SIP
PHONE_NUMBER_1="{PN1}"
SIP_AUTHID_1="{AU1}"
SIP_PASS_1="{PW1}"
SIP_PRXY_ADDR_1="{PRX1}"
SIP_PRXY_PORT_1="{PRP1}"
#SIP_PRNC_ADDR_1=""
#SIP_PRNC_PORT_1=""
SIP_OUTPROXY_ADDR_1="{PRX1}"
SIP_OUTPROXY_PORT_1="{PRP1}"
#
PHONE_NUMBER_2="{PN2}"
SIP_AUTHID_2="{AU2}"
SIP_PASS_2="{PW2}"

```



```

SIP_PRXY_ADDR_2="{PRX2}"
SIP_PRXY_PORT_2="{PRP2}"
#SIP_PRSNC_ADDR_2=""
#SIP_PRSNC_PORT_2=""
SIP_OUTPROXY_ADDR_2="{PRX2}"
SIP_OUTPROXY_PORT_2="{PRP2}"
#
PHONE_NUMBER_3="{PN3}"
SIP_AUTHID_3="{AU3}"
SIP_PASS_3="{PW3}"
SIP_PRXY_ADDR_3="{PRX3}"
SIP_PRXY_PORT_3="{PRP3}"
#SIP_PRSNC_ADDR_3=""
#SIP_PRSNC_PORT_3=""
SIP_OUTPROXY_ADDR_3="{PRX3}"
SIP_OUTPROXY_PORT_3="{PRP3}"
#
PHONE_NUMBER_4="{PN4}"
SIP_AUTHID_4="{AU4}"
SIP_PASS_4="{PW4}"
SIP_PRXY_ADDR_4="{PRX4}"
SIP_PRXY_PORT_4="{PRP4}"
#SIP_PRSNC_ADDR_4=""
#SIP_PRSNC_PORT_4=""
SIP_OUTPROXY_ADDR_4="{PRX4}"
SIP_OUTPROXY_PORT_4="{PRP4}"
#
PHONE_NUMBER_5="{PN5}"
SIP_AUTHID_5="{AU5}"
SIP_PASS_5="{PW5}"
SIP_PRXY_ADDR_5="{PRX5}"
SIP_PRXY_PORT_5="{PRP5}"
#SIP_PRSNC_ADDR_5=""
#SIP_PRSNC_PORT_5=""
SIP_OUTPROXY_ADDR_5="{PRX5}"
SIP_OUTPROXY_PORT_5="{PRP5}"
#
PHONE_NUMBER_6="{PN6}"
SIP_AUTHID_6="{AU6}"
SIP_PASS_6="{PW6}"
SIP_PRXY_ADDR_6="{PRX6}"
SIP_PRXY_PORT_6="{PRP6}"
#SIP_PRSNC_ADDR_6=""
#SIP_PRSNC_PORT_6=""
SIP_OUTPROXY_ADDR_6="{PRX6}"
SIP_OUTPROXY_PORT_6="{PRP6}"
#
PHONE_NUMBER_7="{PN7}"
SIP_AUTHID_7="{AU7}"
SIP_PASS_7="{PW7}"
SIP_PRXY_ADDR_7="{PRX7}"
SIP_PRXY_PORT_7="{PRP7}"
#SIP_PRSNC_ADDR_7=""
#SIP_PRSNC_PORT_7=""
SIP_OUTPROXY_ADDR_7="{PRX7}"
SIP_OUTPROXY_PORT_7="{PRP7}"
#
PHONE_NUMBER_8="{PN8}"
SIP_AUTHID_8="{AU8}"
SIP_PASS_8="{PW8}"
SIP_PRXY_ADDR_8="{PRX8}"
SIP_PRXY_PORT_8="{PRP8}"
#SIP_PRSNC_ADDR_8=""
#SIP_PRSNC_PORT_8=""
SIP_OUTPROXY_ADDR_8="{PRX8}"
SIP_OUTPROXY_PORT_8="{PRP8}"
#
HANDSET_NAME_HS1="{HN1}"

```

```
HANDSET_NAME_HS2="{HN2}"
HANDSET_NAME_HS3="{HN3}"
HANDSET_NAME_HS4="{HN4}"
HANDSET_NAME_HS5="{HN5}"
HANDSET_NAME_HS6="{HN6}"
HANDSET_NAME_HS7="{HN7}"
HANDSET_NAME_HS8="{HN8}"
#
NOISE_REDUCTION_MODE_HS1="1"
NOISE_REDUCTION_MODE_HS2="1"
NOISE_REDUCTION_MODE_HS3="1"
NOISE_REDUCTION_MODE_HS4="1"
NOISE_REDUCTION_MODE_HS5="1"
NOISE_REDUCTION_MODE_HS6="1"
NOISE_REDUCTION_MODE_HS7="1"
NOISE_REDUCTION_MODE_HS8="1"
#
DISPLAY_NAME_1="{DN1}"
DISPLAY_NAME_2="{DN2}"
DISPLAY_NAME_3="{DN3}"
DISPLAY_NAME_4="{DN4}"
DISPLAY_NAME_5="{DN5}"
DISPLAY_NAME_6="{DN6}"
DISPLAY_NAME_7="{DN7}"
DISPLAY_NAME_8="{DN8}"
#
```