
FDC3302e

Htgswgpe{"Fkuvtkdwwkqp"Ejcuuku"Wugt"Ocpwcn

Preface

Vjcpm{"qw"ht"rwtejcuupi"vjg"Htgswgpe{"Fkuvtkdwwkqp"Ejcuuku0"Qwt"iqcn"kp"fgxgnqrkpi"vjku"rtqfwew"ku"vq'dtkpi"}{qw"q"fkuvtkdwwkqp"ejcuuku"vjcv"ykn"swkenn{"gcukn{"cpf"tgkcdn{"oggv"qt"gzeggf"}{qwt"u{uvg"o"tgswktg"ogpvu0"}[qwt"pgy"HF5524g"ku"hcdtkecvf"wukpi"vjg"jki"jguv"swcnk{"ocvgtkcu"cpf"ocpwhcevtw/kpi"rtqeguugu"cxckncdng"vqfc{"cpf"ykn"ixg"}{qwt{"gctu"qh"vtqwdng/htgg"ugtxkeg0

About EndRun Technologies

GpfTwp"Vgejppnqikgu"ku"fgfkecvf"vq"vjg"fgxgnqr"ogpv"cpf"tgLpg"ogpv"qh"vjg"vgejppnqikgu"tgswktgf"vq"hwLnn"vjg"fg"ogcpfkpi"pggf"u"qh"vjg"vk"og"cpf"htgswgpe{"eq"o"owpkv{0

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GpfTwp"Vgejppnqikgu"ku"eq"o"kvvgf"vq"hwL

About This Manual

Vjku"o cpwcn"y km"i wkfg" {qw"vj tqwi j"uk o rng"kpucmcvkqp"cpf"ugv"wr" rtqegfwtgul

Introduction N Vjg"Htgs wgp{ "Fkvtkdwvkqp"Ejcuuku."j qy"kv"y qtmu."y jgtg"vq"wg"kv."kvu"o ckp"hgcvwtgu

Basic Installation N J qy"vq"eqppgev."eqpLi wtg"cpf"vguv" {qwt"fkvtkdwvkqp"ejcuuku

Console Port N Fguetkrvkqp"qh"vjg"eqpuqng"eqo o cpfu"hqt"wg"qxtg"vjg"ugtken"rqtv"qt"qrkvkpcn"pgv y qtm" rqtv

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Warranty

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Hqt"y ctcpv{ "ugtckeg"qt"tgrckt."vjku"rtqfwew" o wuv"dg"tgwtpgf"vq"GpfTwp"Vgejpqni kgu" Dw{gt"ujcnn" rtrgc{ "ujkrkpi"ejctigu"vq"ugpf"rtqfwew"vq"GpfTwp"Vgejpqni kgu"cpf"GpfTwp"Vgejpqni kgu"ujcnn" rc{ "ujkrkpi"ejctigu"vq"tgwtp"rtqfwew"vq"Dw{gt" Jqy gxtg."kh"tgwtpgf"rtqfwew"rtqxs"vq"dg"qrgtcvki" pqt o cm{ "pqv" fghgevkxg+"vjgp"Dw{gt"ujcnn"rc{ "hqt"cn"ujkrkpi"ejctigu" Kh"Dw{gt"ku"nqecvfg"qvwukfg"vjg" W0U0C0"vjgp"Dw{gt"ujcnn"rc{ "cn"fwvkgu"cpf"vczgu."kh"cp{

Rtqfwew"pqv" o cpwhcevwgtf"d{ "GpfTwp"Vgejpqni kgu"dw" kpenwfgf"cu"cp"kpvgi tcn"rctv"qh"cu" {uvgo "g0i0" rgtkr jgtenu."qrkvkpu+"ctg"y ctcpvgf"hqt"pkpgv" {fc{u."qt"nqpi gt"cu"rtqxfgf"d{ "vjg"qtki kpcn"gswkr o gpv" o cpwhcevwgt."htq o "fcvg"qh"ujkr o gpv

Limitation of Warranty

Vjg"htgtiqkpi"gzrtguu"y ctcpv{ "ujcnn"pqv"cr rn{ "vq" fghgevu"tguwnvki"htq o"ko rrtqrgt"qt"kpfcgswcgv" o ckpvpcpeg"d{ "Dw{gt"qt"Wugt."Dw{gt/uwr rnkfg"uqhy ctg"qt"kpvgthceki."wpcwv jqt|gf" o qfkLecvkqp"qt" o kuwug."qrgtcvki"qvwukfg"qh"vjg"gpvktq o gpvcn"urgekLecvkpu"htq"vjg"rtqfwew."qt"ko rrtqrgt"ukvg"rtgrc/ tcvkqp"qt" o ckpvpcpeg

Warranty Repair

Vjku"rcig"kpvgpvkqpcm{"nghv"dncpm0

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Vjku"rcig"kpvgpvkqpcnn{"nghv"dncpm0

ku"cwvq o cvke"qp"pgv y qtmu"wukpi "vjg" F {pc o ke" J quv"EqpŁi wtcvkqp"Rtqvqeqn"*F J ER+0"" Ocpwcn"pgv y qtm" eqpŁi wtcvkqp"ku"xkc"vjg" TU/454"ugtken"KI Q" rqtv0

Free FLASH Upgrades

Hkt o y ctg"ku"uvqtgf"kp"pqp/xqncvknng"HNCUJ " o g o qt {."uq"vjg"HFE"ecp"dg"gcukn { "wr i tcfgf"kp"vjg"Łgnf" wukpi "vjg"Gv jgtpgv" rqtv"qt"nqecn" TU/454" rqtv0"" Yg" o cmg"cmn"Łt o yctg"wr i tcfgu"hq"qwt"rtqfwewu"cxckn/ cdng"vq"qwt"ewuvq o gtu"htgg"qh"ejcti g0""

Theory of Operation

Overview

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Ukpi ng"qt"fwcn"uki pcn"kp rrvwu"ctg"fgvgevfg"cpf" o qpkvqtgf"d { "vjg"cnct o "nq i ke"cpf"ERW0""Kp"cf fkvkqp." ukpi ng"qt"fwcn"VVN"ngxgn"fkucdng"kp rrvwu"ctg" o qpkvqtgf"vq"cmnqy"uykvej kpi"dcugf"qp"vjg"cnct o "qwwrvw" htq o "vjg"wr uvtgc o "uki pcn"uqwtg0""Vjku"gzvgtpcn"cnct o "uki pcn"ecp"dg"eqppgevfg"vq"tgct/rcpgn"DPE" eqppgevqtu"ncdngf"o FKUCDNG"KP o 0""Vjgug"fkucdng"kp rrvwu"ctg"rwngf"wr"ykvj"32m"qj o "tgukuvqtu"uq" vjcv"vjg { " o c { " dg"eqppgevfg"vq"cp"qrgp/eqnngvqt"qwwrvw"uki pcn0""Dcugf"qp"vjg"uvcvwu"qh"vjg"uki pcn"kp rrvw" ngxgn"fgvgevqp"cpf"vjg"fkucdng"kp rrvwu."vjg"cnct o "nq i ke"cpf"ERW"eqpvtn"vjg"uki pcn"kp rrvw"uykvej0"" [qw" ecp"eqpŁi wtg" c"xctkv { "qh"cwvq o cvke"uykvej kpi"uvtcv i kgu"cpf"cnuq" o cpwcm { "hqteg"vjg"ugngevqp"qh" gkvjgt"kp rrv0

Vjg"qwwrvw"uki pcn"htq o "vjg"uykvej"ku"dwhtgtf"cpf"ftkxgu"vgp"dtqfcdcpf"qwwrvw" c o rnkŁgtu0""Qwwrvw"

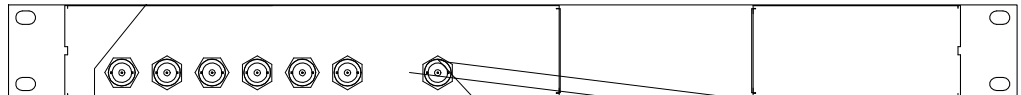
Func



Vjku"rcig"kpvgpvkqpcm{"nghv"dncpm0

Physical
Description

Rqygt"CID"NGFu"	Vjgug"tgflitggp"NGFu"kpfkcevg"rqygt"kprwv"uvcvwu0"" I tggp" o gcpu"vjg"rqygt"uwr rn{"ku"iqqf0""Tgf" o gcpu"vjg"rqygt"uwr rn{"ku"kpucmngf"dww"jcu" hckngf0""Qhh" o gcpu"vjg"qrkqpcn"rqygt"uwr rn{"ku"pqv"kpucmngf0""Rqygt"D"ku"qp"uvcpdf{"y jgp"dqvj"uwr rnkgu"ctg"iqqf0
kprwv"CID"NGFu"	Vjgug"tgflitggp!{gmnqy"NGFu"kpfkcevg"vjg"ukipcn"kprwv"uvcvwu0""Hqt"c"hwann"fguetkrvkqp"ugg"Crrgpfkz"C"/"NGF"Kpfkcevtu0""
Qwvrvw"3/32"NGFu" " "	Vjgug"tgflitggp!{gmnqy"NGFu"kpfkcevg"vjg"rtgugpeg"qt"cdugpeg"qh"ukipcnu"cv"vjg"qwvrvw"eqppgevtu0"" I tggp" o gcpu"vjg"qwvrvw"ku"rtgugpv"cpftgf" o gcpu"vjg"qwvrvw"ku"cdugpv"qt"ujqtvvgf0
Cnct o "NGF"	Vjku"tgflitggp!{gmnqy"NGF"kpfkcevg"vjg"rtgugpeg"qh"c"hcwv"eqpfkvkqp0"" I tggp" o gcpu"vjg"tg"ku"pq"cnct o "eqpfkvkqp0""Tgf" o gcpu"cp"cnct o "eqpfk/vkqp"gzkuvu0""Wug"vjg" "qt" "eq o o c p f u" h q t" o q t g" k p h q t o c v k q p" * u g g" E j c r v g t" 5" / " E q p u q n g" R q t v" E q p v t q n" c p f" U v c v w u + 0



Ukipcn"Qwrrw"3/32"Lcemu" Vjgug"vgp"DPE"eqppgevqt"rtqxfqg"vjg"cpncqi"ukipcn"qwrrwvu0

CE"Rqygt"Kprw"Lcem" Vjku"KGE"542"uvcpfctf"vjtggrtqpi"eqppgevqt"rtqxfqg"CE"rqygt0

FE"Rqygt"Kprw"Dnqem" Vjku"qrvkqpcn"5/rqukvkqp"vgtokpcn"dnqem"rtqxfqg"eqppgevqkq"vq"vjg
" FE"rqygt"uqwteq."cpf"tgrncegu"vjg"CE"rqygt"Kprw"Lcem0""Ugg"fgvcknu
" kp"***Crrgpfkz"G"/"Urgekhecvkqpu0***

SHOCK / ENERGY HAZARD

- Install in Restricted Access Location.
- Use 10-14 AWG copper wire only.
- Terminal block screw torque: 9 in-lbs (1 nM).
- Branch circuit must have circuit breaker, 15A or less.
- Power must be sourced via two-pole disconnect device.
- Install terminal block cover after wiring.

Connect the RS-232 Serial I/O Port

Kh { qwt"pgv y qtm" f qgu" p qv" wug" F J ER." { qw" y knn" pggf" vq" eqpL i wtg" { qwt" Gv j gtpgv" kpvgthceg" wukpi" v j g" TU/454" ugtkc n" Kl Q" rqt v" } Kh" { qwt" pgv y qtm" f qgu" wug" F J ER." { qw" o c { " y kuj" vq" eqppge v" v j g" ugtkc n" rqt v" p q y." ukpeg" kv" y knn" j gnr" { qw" kp" fg dw i i kp i" cp { " rtq dng o u" { qw" o c { " gpeqwpvg t" y kv j" c wv q o c vke" eqpL i wtcvkqp" xkc" F J ER" } Dwv." kh" { qw" y cpv" vq" umkr" v j g" TU/454" ugtkc n" rqt v" ug vwr." rtqegg f" vq" Xg t k h } " P g v y q t m" E q p h k i w t c / v k q p" n c v g t" kp" v j k u" e j c r v g t }

Vq" vguv" ugtkc n" eq o o w pkecvkqpu" y kv j" v j g" HFE" { qw" y knn" pggf" gkv j g t" c" XV322" eq o r cvkdng" vgt o kpc n" qt" c" vgt o kpc n" g o wncvkqp" r t q i t c o" twppkp i" qp" { qwt" eq o r wvgt" } Yg" y knn" tghgt" vq" gkv j g t" qh" v j g u g" cu" ðvgt o kpc n" hqt" v j g" t g o c k p f g t" qh" v j k u" k p u v t w e v k q p }

30" Fkueqppge v" r q y g t" htq o" v j g" HFE }

40" Eqppge v" qp g" p f" qh" v j g" FD ; H / vq / FD ; H" p w n n" o q f g o" c f c r v g t" ecdng" vq" v j g" ugtkc n" Kl Q" l c e m" qp" v j g" HFE }

50" Eqppge v" v j g" q v j g t" gp f" qh" v j g" FD ; H / vq / FD ; H" p w n n" o q f g o" c f c r v g t" ecdng" vq" v j g" vgt o kpc n" " Kh" v j g" ugtkc n" Kl Q" rqt v" qp" { qwt" vgt o kpc n" f qgu" p q v" j c x g" c" FD ; O" eqppge vqt." { qw" o c { " pggf" vq" wug" cp" c f c r v g t" } Tghgt" vq" C r r g p f k z" G" / " U r g e k h k e c v k q p u" hqt" f g v c k n u" qp" v j g" u k i p c n" y k t k p i" } Kh" { qw" c t g" w u k p i" c" e q o r w v g t" hqt" { qwt" vgt o kpc n." t g o g o d g t" y j k e j" r q t v" { qw" c t g" w u k p i" d g e c w u g" { qw" y knn" pggf" vq" m p q y" v j c v" k p" q t f g t" vq" u g v" w r" { qwt" vgt o kpc n" u q h v y c t g }

NOTE

You must use an RS-232 null-modem cable or adapter if you are connecting the FDC to another computer. The cable included in the shipping kit is a null-modem cable.

If your computer does not have a serial port, you can use a USB port with a USB-RS232 converter similar to Gearmo GM-FTDI-8. First, connect the USB converter to your computer, then connect the converter to the null-modem cable. Finally, connect the null-modem cable to the FDC.

Test the Serial Port

[qw" o wuv"eqpŁiwtg" {qwt"vgt o kpcn"vq"wug"vjg"ugtkcn"klQ"rqtv" {qw"wugf"kp"Eqppge"vjg"TU/454"Ugtken"
klQ"Rqt"cdqxg0" [qw" o wuv"cuq"eqpŁiwtg" {qwt"vgt o kpcn"cu"ujqyp"dgnqy<

É" Dcwf"Tcvg<"3;422

É" Fcvc"Dkvu<" :

É" Rctkv{<"Pqpg

É" Uvqr"Dkvu<"3

É" Jcpfujcmkpi"l"Hnqy"Eqpvtq<"QHH"*dqvj"jctfyctg"cpf"uqhvyctg+

É" Vgt o kpcn"G o wncvkqp"*kh"cp{+<"XV322"*qt"uk o knct+"qt"Nkpwz

Chvgt"eqpŁiwtkpi"vjgug"rctc o gvtu"kp" {qwt"vgt o kpcn."cr rn{"r qygt"vq"vjg"HFE0"

Qpeg" {qw" jcxg" uweeguuhwnn { "guvcdnku jgf" eq o o wpkecvkqpu" ykvj" vjg" HFE." {qw" oc { "rtqeggf" vq" eqp/
Łiwtg" vjg" pgyyqtm" rctc o gygtu" wukpi" " *ugg" dgnqy +0" "Vjgp" {qw" ecp" eq o o wpkecvg" ykvj"
vjg" HFE" qxgt" vjg" pgyyqtm" wukpi" "qt" "cpf" u {pej tqpk |g" kvu" u {uvgo "enqem" vq" {qwt" pgyyqtm"
eq o rwvgtu" wukpi" PVR}

Using netconfig to Set Up Your IP

o fudp o g j h

kh{qw"ctg"wukpi" F J ER"cpf"ctg"pqv"wukpi"vjg" TU/454"ugtkcn"klQ"rqtv."{qw"yknn"jcxg"vq"ejgem"vjg"
F J ER"eqpŁi wtcvkqp"kpht o cvkqp" o ckpvcpgf"d{ " {qwt" F J ER"ugtxgt"vq"fgvgt o kpg"vjg"gzrgevgt"KR"
c f f t g u u " c p f " n q i " k p " v q " v j g " H F E " w u k p i " " q t " " v q " x g t k h { " u w e e g u u h w n " F J E R " e q p Ł i w t c v k q p 0 " T g h g t "
vq"vjg"uwdugswgpv"vqrkeu"kp"vjku"ugevkqp" **Wukp i " Vgnpgv"** cpf" **Wukp i " U U J .**"hqt"fgvcknu"qp"nqi"i kpi"kp"vq"vjg"
HFE"vjcv"yc{0"Qpeg"{qw"jcxg"nq i i g f " k p . " { q w " o c { " r g t h q t o " v j g " h q n n q y k p i " e j g e m u }

kh{qw"ctg"pqv"wukpi" F J ER"vjg"KR" c f f t g u u " u j q y p " u j q w n f " o c v e j " v j g " u v c v k e " K R " c f f t g u u " y j k e j " { q w "
g p v g t g f " f w t k p i " v j g " " r t q e g f w t g 0 " " K h " u q . " n q i " k p " c u " o t q q v o " c v " v j g " n q i k p " r t q o r v " c p f " e j g e m " v j g "
q v j g t " e q p Ł i w t c v k q p " r t c o g v g t u " w u k p i " <

Rc{ " r c t v k e w n c t " c w g p v k q p " v q " v j g " u g v k p i u " u j q y p " h q t " . " k p " r c t v k e w n c t " v j g " < " u g v k p i . " y j k e j " u j q w n f "
o c v e j " v j c v " y j k e j " k u " c r r t q r t k c v g " h q t " { q w t " p g v y q t m 0 " P q y " e j g e m " v j g " t g o c k p k p i " e q p Ł i w t c v k q p " r t c o g v g t u "
w u k p i " <

J g t g { q w " c t g " k p v g t g u v g f " k p " v j g " f g h c w n v " i c v g y c { " c f f t g u u 0 " " K v " u j q w n f " o c v e j " v j g " c r r t q r t k c v g " q p g " h q t " { q w t "
p g v y q t m 0 " " K h " u q . " v j g p " v j g " G v j g t p g v " k p v g t h c e g " q h " { q w t " H F E " j c u " d g g p " u w e e g u u h w n n { " e q p Ł i w t g f " v q " q r g t / "
c v g " q p " { q w t " p g v y q t m " c p f " { q w " c t g " t g c f { " v q " e j g e m " q r g t c v k q p " q h " v j g " H F E " q x g t " v j g " p g v y q t m 0 " " K h " p q v . " { q w "
u j q w n f " t e j g e m " { q w t " e q p Ł i w t c v k q p " c p f l q t " t r g c v " v j g " " r t q e g f w t g 0

kh{qw"jcxg"eqpŁi w t g f " c " p c o g u g t x g t * u + " h q t " { q w t " p g v y q t m . " { q w " o c { " e j g e m " v j c v " d { " k u u w k p i " v j k u " e q o / "
o c p f <

Y j k e j " f l u r n c { u " v j g " e q p v g p v u " q h " v j g " l g v e l t g u q u x 0 e q p h " L n g " e q p v c k p k p i " v j g " f q o c k p " p c o g " { q w " g p v g t g f " r t g x k / "
q w u n { " w u k p i " . " c p f " v j g " p c o g u g t x g t " K R " c f f t g u u * g u + " v q " w u g " h q t " v j c v " f q o c k p 0

Using SSH

```
Y jgp"guvcdnkujkpi" "eqppgevkkp" ykvj" {qwt"HFE."nqi ikpi "kp" fktgevn{ "cu"tqqv"ku" rgt okvvgf0" Y jgp"  
{qw"nqi "kp"cu"tqqv"xkc" "uguukqp" ykvj"vjg"HFE."vjkudcppgt" yknn"dg" fku rnc{gf<
```

```
Jgtg" {qw" oc{ "nqi "kp"cu"ötqqvö" ykvj" rcuuyqtf"ögpftwpa3ö0" Chvgt"eqttgevn{ "gpvgtkpi"vjg" rcuuyqtf"vjg"  
ukip"qp" o guucig"ku"ujqyp0"Kv"kfgpvkŁgu"vjg"O ? ku" gu" g"q
```

Connecting Instruments
to the FDC

Connect Signal Inputs and Outputs

Vjku"rcig"kpvgpvkqpcnn{"nghv"dncpm0

Available User Commands

ceeguueqpŁi	kpvgtcevkxg"uetkrv"vjcv"i wkgu" {qw"kp"eqpŁi wtkpi" . " "cpf" "ceeguu"vq"HFE"vjcv"ku"nk o kvgf"vq" urgekŁe" jquvu0"Vjg"tguwnvki"lgevl j quvu0cnnqy"cpf" lgevl j quvu0fgpf"Łngu"ctg"ucxgf"vq"vjg"pqp/xqncvkng"HNCUJ "fkum0" Hcevqt { " fghcwnv"eqpŁi wtcvkqp"cmqy u"ceeguu"d { "cnn" j quvu0
cncct o uvcv	Rtkpvu"u { uvg o "cncct o "kphqt o cvkqp"cu"c"ugtkgu"qh gtqu"cpf"qpgu0 Y jgtg"÷3ø" o gcpu"vjg"cncct o "ku"cuugtvgf"cpf"÷2ø" o gcpu"kv"ku"pqv0 Cp"÷zø" o gcpu"kv"ku"pqv"kpucvngf0
fetgugv	Vjku" y knn"ecwug"cu { uvg o "tgugv"qh"vjg"Fkuvtkdvwkqp"Uwdu { uvg o 0
fetgvwtp	Vgmu"vjg"Fkuvtkdvwkqp"Uwdu { uvg o "vq"tgvwtp"vq"vjg"rtk o ct { "kprwv0
fexgtukqp	Rtkpvu"vjg"uqhv y ctg"cpf"HR I C"xgtukqp"kphqt o cvkqp"ht"vjg"Fku/ vtkdvwkqp"Ejcuuku"Uwdu { uvg o 0
fkucdng o qfg	EqpŁi wtku"fkucdng"C"cpf"fkucdng"D"kprwvu0
fkucdngucv	Rtkpvu"vjg"ewttgpn"uvcvuu"qh"vjg"fkucdng"C"cpf"fkucdng"D"kprwvu0" C"÷3ø" o gcpu"vjg"kprwv"ku"cuugtvgf"cpf"÷2ø" o gcpu"kv"ku"pqv0
hcwnvucv	Rtkpvu"vjg"uw o o ct { "qh"cnu"u { uvg o "hcwnv O "pqkv vjg"pr O

Uki pcn"Kpr ww"C"cdugpv	Qww rww"3"uki pcn"cdugpv	U{ uvg o "Quekncvqt"gttqt
Uki pcn"Kpr ww"D"cdugpv	Qww rww"4"uki pcn"cdugpv	Hncuj"gttqt
Fkucdng"C"cuugtvf	Qww rww"5"uki pcn"cdugpv	HR I C"gttqt
Fkucdng"D"cuugtvf	Qww rww"6"uki pcn"cdugpv	FkuvUwdu{ uvg o "Eq o o
Rq ygt"Uwr rn{"C"hckngf	Qww rww"7"uki pcn"cdugpv	
Rq ygt"Uwr rn{"D"hckngf"*qr vkqp+	Qww rww"8"uki pcn"cdugpv	
	Qww rww"9"uki pcn"cdugpv	
	Qww rww": "uki pcn"cdugpv	
	Qww rww"; "uki pcn"cdugpv	
	Qww rww"32"uki pcn"cdugpv	

" Eqo ocpf<"
 " !dHFE!tgrn{<" *Cp"cnct o "gzkuvu"qp"Uki pcn"Kpr ww"D0"Cnuq.
 " " " " " " " " Rq ygt"Uwr rn{"D"ku"pqv"kpucnngf0+

NOTE

dcversion

Vjku"swgt{/qpn{"eqo o cpf" yknn"ujqy"vjg"ewttgpn"Łto yctg"cpf"HRIC"xtukqp"kpht o cvkqp"qh"vjg"
Fkvtkdwwkqp"Uwdu{uvgo}

" Eqo o cpf<"
" HFE"tgrn{<" "

disablemode

Vjku"eqo o cpf"cnmqyu" {qw"vq"ugngev"gzvgtpcn"cnct o "kprwv"htqo "vjg"tghgtpeg"uqwtg"*kh"cp{+"cu"urgek/
Łgf"kp"Cr r gpfkz"G0"*Vjgug"kp r wv"ctg"ncdngf"õFKUCDNG"KPõ"qp"vjg"tgct/rcpgn0+""Y jgp"vjg"gzvgtpcn"
cnct o "kprwv"ku"cuugtvgf"kv" yknn"fkucdng"vjg"eqttgurqpfpki"tghgtpeg"uki"pcn"kp r wv"cpflqt"ugv"cu{uvgo "
cnct o 0""Kh" {qw"ctg"pq" wukpi"gzvgtpcn"cnct o u"vjgp"ugv" "vq" P.P0""Fkucdng o qfg"u {pvcz"ku<

yjgtg"rtco gvgt"cu" ["*" {gu+"qt" P"*pq+"hqt" y jgvjgt"vq" wug"vjg" Fkucdng" C"kp r wv"qt"pqv0""Rctco gvgt"d"ku"
["qt" P" hqt" y jgvjgt"vq" wug"vjg" Fkucdng" D"kp r wv"qt"pqv0""Rctco gvgt"z"vgnmu"vjg"ejcuuku" y jcv"cevkap"vq"vcmg"
y jgp"vjgtg"ku"pq" iqqf"kp r wv"uki"pcn"vq"uykvej"vq<""QP"vq"ngcxg"vjg"ugngevgf"kp r wv"qp."qt"QHH"vq"uykvej"
dqvj"tghgtpeg"kp r wv"qhh" y jgp"vjg" {dqvj"jcxg"cu"hcwv0""Vjku"rtco gvgt"ecp"dg"nghv"dncpm"kh"dqvj" Fku/
cdng"kp r wv"ctg"vq"dg"ki"pqtf0

Kh" "ku" P.P"vjg"ejcuuku" yknn"ki"pqtg"vjg" Fkucdng" C"cpf" Fkucdng" D"kp r wv0""Kh" "
ku" [. [.QHH"*qt" P. [.QHH"qt" [.P.QHH+"vjg"ejcuuku" yknn"vwtp"qhh"vjg"ncuv"ugngevgf"tghgtpeg"kp r wv" y jgp"kv"
uggu" Fkucdng"cuugtvgf"cpf"vjgtg"ku"pq" iqqf"uki"pcn"rtgugpv"qp"vjg"qvjgt"kp r wv0""Hqt"gzco rng<

Gzco rng"3<"Kh" "ku" [.P.QHH"cpf" "ku" C."vjgp"vjgtg"ku"pq"ugeqpfct{ "tghgtpeg"
kp r wv"cpf"vjg"ejcuuku"ecppqv"uykvej"kh"vjg" Fkucdng" C"kp r wv"ku"cuugtvgf0""Kh" Fkucdng" C"ku"cuugtvgf."Uki"pcn"
kp r wv" C" yknn"dg"uykvejgf"qhh." y jkej" yknn"uykvej"qhh"cn"vjg"qwvrvwu0

Gzco rng"4<"Kh" "ku" [. [.QHH"cpf" "ku" CD"cpf"vjg" Fkucdng" C"kp r wv"ku"cuugtvgf."
vjg"ejcuuku" yknn"uykvej"vq"Uki"pcn"kp r wv"D0"" Jqy gxtg."kh"kp r wv"D"jcu"c"rtqdngo "*"kp r wv"uki"pcn" i qgu"cy c { "
qt" Fkucdng" D"ku"cuugtvgf+"vjgp"vjg"ejcuuku" yknn"uykvej"qhh"Uki"pcn"kp r wv" C." y jkej" yknn"uykvej"qhh"cn"vjg""
qwvrvwu0

PQVG<"Kh"dqvj"kp r wv" C"cpf" D"jcxg"dggp"uykvejgf"qhh"vjgp" {qw" o wuv"gpvgt"vjg" "eqo o cpf"
chvgt" {qw"jcxg"eqttgevgf"vjg"rtqdngo 0}

Kh" "ku" [. [.QP"*qt" P. [.QP"qt" [.P.QP+"vjgp"vjg"ejcuuku" yknn"uykvej"dgvyggp"vjg"rtco ct { "
cpf"ugeqpfct{ "kp r wv"cu"fguetkdgf"cdqyg" y jgp" Fkucdng"ku"cuugtvgf."dwv"kv" yknn"pgxgt"uykvej"dqvj"vjg"
kp r wv"qhh0

V{rkpi" "ykvj"pq"rtco gvgtu" yknn"fkurnc" { "vjg"ewttgpn"ugvvpki0

Kh" {qw"ejcpi g"vjku"ugvvpki"kv" yknn"dg"ucxgf"kp"pqp/xqncvkn" o go qt {0""Vjku"ku" c"eqpŁiwtcvkqp"eqo o cpf"
cpf"kh"vjg"rtco gvgtu"ctg"ejcpi g"vjku" yknn"ecwug" c"tg/kpkvkcnk/cvkqp"qh"vjg"uqhv yctg0

```

" Eqo o cpf<"
" HFE"tgrn{<"
" " " " " " " " *Fkucdng"C"ku"xcnkf"cpf" Fkucdng"D"ku"ki pqtgf0"
" " " " " " " " Vjg"ejcuuku" ykm"ngcxg"vjg" kprwvu"qp"kh"
" " " " " " " " Fkucdng"C"ku"cuugtvgf0+
  Eqo o cpf<"
" HFE"tgrn{<"
"

```

disablestat

```

Vjku"swgt{/qpn{"eqo o cpf"ujqyu"vjg"uvcwuw"uki pcn"ngxgnu+"qh"vjg" Fkucdng"C"cpf" Fkucdng"D" kprwvu0"
Vjg"Łtuv"ejctcevt"ku" hqt" Fkucdng"C"cpf"vjg"ugeqpf"ejctcevt"ku" hqt" Fkucdng"D0"C"÷2ø" o gcpu"vjg"fkucdng"
kprwvu"ku"nqy."cpf" c"÷3ø" o gcpu"vjg"fkucdng" kprwvu"ku" jki j "*cuugtvgf"/"c"hcwv"eqp fkvkqp+0

```

```

" Eqo o cpf<"
" HFE"tgrn{<"
" " " " " " " " *Fkucdng"D" kprwvu"ku"cuugtvgf0"
" " " " " " " " Fkucdng"C"ku"pqv0+

```

faultstat

```

Vjku"eqo o cpf"tgwvtpu"vjg"uw o oct{"qh"cnu"u{uvgo"cpf"fkvtkdwvkqp"uwdu{uvgo"hcwv"uvcygu"kp" c" wugt/
htkpf n{"hqt o cv0" Cp"gzco rng"ku"ujqyp" dgnqy0"

```

```

" Eqo o cpf<"
" Ejcuuku"tgrn{<"

```

```
" Eqo o cpf<"
" HFE"tgrn{<" Cnn"eqo o cpfu"ctg"fkurnc{g f0
Eqo o cpf<"
" HFE"tgrn{<" Kphqt o cvkqp"urgekLe"vq"vjg" "eqo o cpf"ku"fkurnc {g f0
```

inetdconfig

```
Vjku"eqo o cpf"uvtvu"cp"kpvgtcvkg"uetkrv"vjcv"cnmq y u {qw"vq"eqpLi wtg"vjg"nkuv"qh"r tqvqeqn"ugtxgtu"
y jkej"ctg"uvtvgf"d{ "vjg" "uwr gt/ugtxgt"fcg o qp"twppkpi "kp"HFE0"Vj tgg"r tqvqeqn"ugtxgtu"o c {
dg"eqpLi wtg f<"Vko g."Fc{vk o g."cpf"Vgnpgv0"D{ "fghcwnv."vjg"wpkv"ku"eqpLi wtg f"vq"uvtv"Vgnpgv0"Kh" {qw"
pggf"vq"fkucdng"kv" {qw" o wuv"twp"vjku"uetkrv"cu"tqqv"htq o "gkvjgt"vjg" TU/454"ugtken"klQ"r qtv"qt"htq o "c"
"qt" "uguukqp0"Vjku"uetkrv" o qfkLgu"vjg"lgvelkpgvf0eqph"Lng." y jkej"ku"pqp/xqncvkngn { "uvtg f"kp"
vjg"HNCU J "fkum"ldqqvlgve" fktgevt {0" [qw" o wuv"tgddqv"HFE"chvgt"twppkpi "vjku"uetkrv"htq"vjg"ejcpi gu"vq"
vcmg"ghhgev0
```

```
" Eqo o cpf<"
" HFE"tgrn{<" Kpvgtcvkg"uetkrv"ku"uvtvg f0
```

netconfig

```
Vjku"eqo o cpf"uvtvu"cp"kpvgtcvkg"uetkrv"vjcv"cnmq y u {qw"vq"eqpLi wtg"vjg"KR"pgv y qtm"uwdu {uv g o "qh"
HFE0"D{ "fghcwnv."vjg"wpkv"ku"eqpLi wtg f"vq"eqpLi wtg"kvugnh"wukpi "vjg" F {pc o ke" J quv"EqpLi wtcvkqp"
Rtqvqeqn"*F J ER+0"Kh" {qw"pggf"vq"ugv"wr"uvcvke"KR"eqpLi wtcvkqp." {qw" o wuv"twp"vjku"uetkrv"cu"tqqv"htq o "
vjg" TU/454"ugtken"klQ"r qtv"fwtkp i"vjg"kpucnncvkkqp"rtqegu0" Tghgt"vq" Ej crvgt"4"/"Dcuke"Kpuvcnncvkkqp."
Wukpi"pgveqphki"vq"Ugv"Wr" [qwt"KR"htq" fgvc knu"qp"vjg"wug"qh"vjg"eqo o cpf0
```

```
Vjku"uetkrv"etgcvgu"qt" o qfkLgu"vjgug"Lngu<"lgvel JQUVPCOG."lgvel jquwu."lgvelpgvy qtmu."lgveltguqnxeqph"
cpf"lgveltel0f0kpgv30eqph0" Cnn"qh"vjgug"ctg"pqp/xqncvkngn { "uvtg f"kp"vjg"HNCU J "fkum"ldqqvlgve" fktge/
vqt {0" [qw" o wuv"tgddqv"HFE"chvgt"twppkpi "vjku"uetkrv"htq"vjg"ejcpi gu"vq"vcmg"ghhgev0"
```

```
" Eqo o cpf<"
" HFE"tgrn{<" Kpvgtcvkg"uetkrv"ku"uvtvg f0
```

ntpconfig

```
Vjku"eqo o cpf"uvtvu"cp"kpvgtcvkg"uetkrv"vjcv"cnmq y u {qw"vq"eqpLi wtg"vjg" PVR"Uwdu {uv g o "qh" {qwt"
HFE0"Kv"ku"jki jn { "tgeq o o gpfgf"vq"eqpLi wtg"uvtcvw o "4"qrgtcvkkqp"qh" {qwt"HFE"uq"vjcv"vjg"u {uv g o "
nqi"Lngu" y knn"jcxg" o gcckp i hwn"vk o guvc o ru0" [qw" o wuv"twp"vjku"uetkrv"cu"tqqv0"D{ "fghcwnv."vjg"wpkv"ku"
eqpLi wtg f"vq"cwv jgpvkecvg" y kvj "c"ugv"qh" fghcwnv" OF7"mg {u"kp"vjg"lgvelpvr0mg {u"Lng0"Kp"cf fkvkqp"vq"ugv/
vkpi "wr"uvtcvw o "4"qrgtcvkkqp."vjku"uetkrv" y knn"cnmq y " {qw"vq"etgcvg" {qwt"qy p" OF7"mg {u"*tgeq o o gpfg f+"
qt"ugv"wr"dtqcfecuvl o wnvkecu v"enkpv"qrgtcvkkqp0" Tghgt"vq" Ej crvgt"9"/"Eqphkiwtkpi" HFE"cu" c"Uvtcvw o "
4"Ugtxgt"htq" fgvc knu"qp"vjg"wug"qh"vjku"eqo o cpf0
```

```
Vjg"v y q"Lngu"vjcv"ctg" o qfkLgf"ctg"lgvelpvr0mg {u"cpf"lgvelpvr0eqph0"Dqv j"qh"vjgug"ctg"pqp/xqncvkngn { "
uvtg f"kp"vjg"HNCU J "fkum"ldqqvlgve
```

ntpstat

Vjku"eq o o cpf" rtqxfgu"uq o g"mg{ "kphqt o cvkqp"tgi ctfkpi "vjg"qrgtcvkqp"qh"vjg"PVR"fcg o qp0""Vjg"
hqt o cv"qh"vjg"tgurqpug"ujqyu"vjg"ewttgpv"uvcvwu"qh"vjg"PVR"fcg o qp<

"

serialnumber

Vjku"eqo o cpf"ujqyu"vjg"ugtkcn"pwo dgt"qh"vjg"HFE0"

" Eqo o cpf<"
" HFE"tgrn{<"

settings

Vjku"swgt{"eqo o cpf"fkurnc{u"cnm"Fkuvtkdwwkqp"Uwdu{uvgo"eqo o cpf"ugvvpku0

"""" Eqo o cpf<"
" HFE"tgrn{<"

signinstat

Vjku"swgt{/qpn{"eqo o cpf"ujqyu"vjg"ewtgpv"ucvuwu"qh"dqvj"Ukipcn"Kprwv"C"cpf"D0""Vjg"Łtuv"ejctcevgt"ku"hqt"Ukipcn"Kprwv"C"cpf"vjg"ugeqpf"ejctcevgt"ku"hqt"Ukipcn"Kprwv"D0""C"2ø"ogcpu"c"ukipcn"ku"pqv"rtgu/gpv"cpf"c"3ø"ogcpu"c"ukipcn"ku"rtgugpv0

" Eqo o cpf<"
" HFE"tgrn{<" *Ukipcn"Kprwv"C"ku"rtgugpv0"Ukipcn"Kprwv"D"ku"pqv0+

sigoutstat

Vjku"swgt{/qpn{"eqo o cpf"ujqyu"vjg"ewtgpv"ucvuwu"qh"Qwvrvw"Ukipcnu"3"vjqwi j"320""Vjg"Łtuv"ejctce/vgt"ku"hqt"Qwvrvw"3."vjg"ugeqpf"ku"hqt"Qwvrvw"4."cpf"uq"qp0"C"2ø"ogcpu"vjgtg"ku"pq"Kprwv"ukipcn."vjg"qww/rwv"ftkxgt"ku"dcf"qt"cu"jqtv"ku"eqppgevgf"vq"kv0"C"qpg"3ø"ogcpu"vjgtg"ku"cp"Kprwv"ukipcn"cpf"vjg"qwwrvw"ukipcn"ku"iqqf0

" Eqo o cpf<"
" HFE"tgrn{<" *C"rtqdn go"gzkuvu"cv"Qwvrvw"40+

status

Vjku"eqo o cpf"fkurnc{u"vjg"tguwnvu"qh"cnm"Fkuvtkdwwkqp"Uwdu{uvgo"ucvuwu"swgt{"eqo o cpf"u0

"""" Eqo o cpf<"
" HFE"tgrn{<"

switchmode

Vjku"eqo o cpf"ugvu"vjg"uykvejkipi"oqfg"kp"ecug"c"hcwvn"ku"fgvgevgf0"C"hcwvn"ku"gvjgt"ncem"qh"ukipcn"rtgugpeg"qt"c"nqike"jki j"ngxgn"qp"Fkucdng"C"qt"Fkucdng"D."rtqxfgf"vjgug"jcxg"dggp"eqpŁiwtgf"rtqr/gtn{"*ugg" +0""U{pvcz"ku<"

```

Y jgtg" "ku"C."D."CD."qt"DC0""Kh" "ku" "v jgp"v jg"ejcuuku"y knn"wug"Uki pcn"Kprww"C"cu"kvu"rtk/
o ct{"uqwteg"cpf"Uki pcn"Kprww"D"cu"kvu"ugeqpfct{"uqwteg0""V jku"o gcpu"v jg"ejcuuku"y knn"u ykvej"vq"Uki pcn"
Kprww"D"kh"c"rtqdn g o"qp"C"qeewtu0""Kh" "ku" "v jgp"v jg"tgxgtug"ku"vtwg0""Kh" "ku" "
qt" "ku" "v jgp"v jgtg"ku"pq"ugeqpfct{"kprww0""V jg"ejcuuku"y knn"glvjgt"tg o ckp"qp"v jg"rtk o ct {"
uki pcn"Kprww"qt"y knn"u ykvej"kv"qhh."fgrgpfkpi"qp"v jg" "ugvvpki0""V{ rkp i" "ykvj"
pq"rctc o gvt"y knn"fkurnc{"v jg"ewttgpn" "ugvvpki0""V jg"hcevqt{"fghcwnv"ugvvpki"ku<

```

```

Kh{"qw"ejcpi g"v jku"ugvvpki"kv"y knn"dg"ucxgf"kp"ppq/xqncvkn g"o g o qt{0""V jku"ku"c"eqpLiwtcvkqp"eqo o cpf"
cpf"kh"v jg"rctc o gvtu"ctg"ejcpi g"v jku"y knn"ecwug"c"tg/kpkvknk/cvkqp"qh"v jg"uqhv y ctg0

```

```

" Eqo o cpf<"
" HFE"tgrn{<" *D"ku"rtk o ct{0"C"ugeqpfct{0+
" Eqo o cpf<"
" HFE"tgrn{<"

```

syskernel

```

V jku"eqo o cpf"tgwvtpu"v jg"ewttgpn{"dqqv g f"nkp wz"mgtpgn."glvjgt"2"qt"3."y jgtg"2"ku"v jg"hcevqt{/kpuvcnmgf"
mgtpgn"cpf"3"ku"v jg"wr i tcf g f"mgtpgn0

```

```

" Eqo o cpf<"
" HFE"tgrn{<"

```

sysrootfs

```

V jku"eqo o cpf"tgwvtpu"v jg"ewttgpn{"nqc f g f"nkp wz"tqqv"Ln g"u{uv g o."glvjgt"2"qt"3."y jgtg"2"ku"v jg"hce/
vqt{/kpuvcnmgf"tqqv"Ln g"u{uv g o"cpf"3"ku"v jg"wr i tcf g f"tqqv"Ln g"u{uv g o0

```

```

" Eqo o cpf<"
" HFE"tgrn{<"

```

sysversion

```

V jku"eqo o cpf"fkurnc{u"v jg"Łt o y ctg"xgtukqp"cpf"dwknf"fcvg"qh"v jg"Nkp wz"tqqv"Ln g"u{uv g o0

```

```

" Eqo o cpf<"
" HFE"tgrn{<"

```

updatekernelflag

```

V jku"eqo o cpf"cnmqy u{"qw"vq"wr fcv g"v jg"eqpLiwtcvkqp"qh"v jg"Nkp wz"dqqvnc fgt"chvgt"c"pgy"mgtpgn"ko /
ci g"jcu"dggp"y tkvvp"vq"v jg"WR I TCFG"mgtpgn"rctvkvpq"qh"HFE"HNCU J"fkum0""[qw"o c{"cnuq"wug"kv"vq"
tgugv"v jg"fghcwnv"dcem"vq"v jg"HCEVQT["mgtpgn"rctvkvpq0""Tghgt"vq"Cr r g p f k z" D"/"W r i t c f k p i"v j g" H k t o /
y c t g."R g t h q t o k p i"v j g"N k p w z" M g t p g n" W r i t c f g" h q t" f g v c k n g f" k p u v t w e w k q p u" h q t" r g t h q t o k p i"v j g" w r i t c f g"
rtqegfwtg0""Qpg"ct

```

```
" Eqo o c p f < "
" HFE " t g r n { < "
" Eqo o c p f < "
" HFE " t g r n { < "
```

updaterootflag

```
V j k u " e q o o c p f " c n n q y u " { q w " v q " w r f c v g " v j g " e q p L i w t c v k q p " q h " v j g " N k p w z " d q q v n q c f g t " c h y g t " c " p g y " t q q v " L n g "
u { u v g o " k o c i g " j c u " d g g p " y t k v g p " v q " v j g " W R I T C F G " t q q v " L n g " u { u v g o " r c t v k v k q p " q h " H F E " H N C U J " f k u m 0 " " [ q w "
o c { " c n u q " w u g " k v " v q " t g u g v " v j g " f g h c w n v " d c e m " v q " v j g " H C E V Q T [ " t q q v " L n g " u { u v g o " r c t v k v k q p 0 " " T g h g t " v q " C r /
r g p f k z " D " / " W r i t c f k p i " v j g " H k t o y c t g " h q t " f g v c k n g f " k p u v t w e v k q p u " h q t " r g t h q t o k p i " v j g " w r i t c f g " r t q e g f w t g 0 " "
Q p g " c t i w o g p v " k u " c e e g r v g f . " " y j q u g " x c n w g " k u " g k v j g t " 2 " q t " 3 . " y j k e j " e c w u g u " c " f c i " v q " d g " u g v " v j c v " k p f k e c v g u " v q "
v j g " d q q v n q c f g t " y j k e j " t q q v " L n g " u { u v g o " k o c i g " u j q w n f " d g " n q c f g f " d { " f g h c w n v 0 " " K h " c p " c t i w o g p v " x c n w g " q h " 4 " k u "
i k x g p . " v j g p " v j g " e w t t g p w { " e q p L i w t g f " f g h c w n v " t q q v " L n g " u { u v g o " k u " u j q y p 0
```

```
" Eqo o c p f < "
" HFE " t g r n { < "
" Eqo o c p f < "
" HFE " t g r n { < "
```

upgradekernel

```
V j k u " w v k n k v { " c n n q y u " { q w " v q " w r i t c f g " v j g " N k p w z " M g t p g n 0 " " K v " k u " t w p " c h v g t " v j g " m g t p g n 0 i / " L n g " j c u " d g g p " e q r k g f "
v q " v j g " l v o r " f k t g e v t { " q p " v j g " u { u v g o 0 " " K v " r g t h q t o u " c p " g t c u g " q h " v j g " w r i t c f g " m g t p g n " r c t v k v k q p " c p f " v j g p "
y t k v g u " v j g " l v o r l m g t p g n 0 i / " L n g " v q " k v 0 " " T g h g t " v q " C r r g p f k z " D " / " W r i t c f k p i " v j g " H k t o y c t g . " R g t h q t o k p i " v j g "
N k p w z " M g t p g n " W r i t c f g " h q t " f g v c k n g f " k p h q t o c v k q p 0
```

```
" Eqo o c p f < "
" HFE " t g r n { < "          U j q y u " r t q i t g u u " k p f k e c v q t 0
```

upgradekerneldtb

```
V j k u " w v k n k v { " c n n q y u " { q w " v q " w r i t c f g " v j g " N k p w z " M g t p g n " F g x k e g " V t g g " D n q d " * F V D + . " y j k e j " e q p v c k p u " c " f g /
u e t r v k q p " q h " v j g " j c t f y c t g " f g x k e g " k p h q t o c v k q p " h q t " v j g " m g t p g n 0 " " K v " k u " t w p " c h v g t " v j g " m g t p g n 0 f v d " L n g " j c u " d g g p "
e q r k g f " v q " v j g " l v o r " f k t g e v t { " q p " v j g " u { u v g o 0 " " K v " r g t h q t o u " c p " g t c u g " q h " v j g " w r i t c f g " m g t p g n " F V D " r c t v k v k q p "
c p f " v j g p " y t k v g u " v j g " l v o r l m g t p g n 0 f v d " L n g " v q " k v 0 " " T g h g t " v q " C r r g p f k z " D " / " W r i t c f k p i " v j g " H k t o y c t g . " R g t /
h q t o k p i " v j g " N k p w z " M g t p g n " W r i t c f g " h q t " f g v c k n g f " k p h q t o c v k q p 0
```

```
" Eqo o c p f < "
" HFE " t g r n { < "          U j q y u " r t q i t g u u " k p f k e c v q t 0
```

upgraderootfs

```
V j k u " w v k n k v { " c n n q y u " { q w " v q " w r i t c f g " v j g " N k p w z " T q q v " H k n g " U { u v g o 0 " " K v " k u " t w p " c h v g t " v j g " t q q v h u 0 i / " L n g " j c u "
d g g p " e q r k g f " v q " v j g " l j q o g " f k t g e v t { " q p " v j g " u { u v g o 0 " " K v " r g t h q t o u " c p " g t c u g " q h " v j g " w r i t c f g " t q q v " L n g " u { u v g o "
r c t v k v k q p " c p f " v j g p " y t k v g u " v j g " l j q o g l t q q v h u 0 i / " L n g " v q " k v 0 " " T g h g t " v q " C r r g p f k z " D " / " W r i t c f k p i " v j g " H k t o /
y c t g . " R g t h q t o k p i " v j g " N k p w z " T H U " W r i t c f g " h q t " f g v c k n g f " k p h q t o c v k q p 0 0
```

```
" Eqo ocpf<"  
" HFE"tgrn{<" Ujqyu"rtqitguu"kpfkcevqt0
```

upgradesubsys

```
Vjku"wwknkv{"cmqyu{"qw"vq"wr itcfe"vjg" Fkuvtkdwwkqp"Uwdu{uvgo"Łto yctg0""Rtkqt"vq"gzgewkpi"vjku"  
eqo ocpf."{qw"owuv"eqr{"vjg"dkpct{"Łto yctg"Łng"vq"dg"wrnqcfgf"vq"vjg" Fkuvtkdwwkqp"Uwdu{uvgo"vq"  
lvorluwdu{u0dkp0""Kv"kuuwgu"vjg"eqo ocpfu"qxgt"vjg"ugtkcn"rqtv"vq"vjg" Fkuvtkdwwkqp"Uwdu{uvgo"vjcv"ctg"  
pggfgf"vq"uvctv"vjg"Z/oqfgo"Łng"vtepuhgt."cpf"vjgp"fkurnc{u"rtqitguu"vq"vjg"eqpuqng0""Ugg"Crrgpfkz"D"  
/"Writcfki"vjg"Hkto yctg."Rgthqto kpi"vjg" Fkuvtkdwwkqp"Uwdu{uvgo" Writcfe"hqt"oqtg"kphtocvkqp"  
dghqtg"wukpi"vjku"eqo ocpf0
```

```
" Eqo ocpf<"  
" HFE"tgrn{<" Writcfe"rtqitguu"ku"ujqyp0
```


IMPORTANT

After editing `.dsb.rm` in `loc-bnme`, you must copy it to the `.anns.dsb` directory and reboot the system. It is very important to retain the access mode for the file (readable only by `qnnns`), so be sure to use `chmod` when performing the copy. During the boot process, the files contained in the `.anns.dsb` directory are copied to the working `.dsb` directory on the system RAM disk. In this way the factory defaults are overwritten.

Configuration of SNMPv3

```
kh {qw"ctg"rncppkpi"vq"wug"UP ORx5." {qw"ujqwnf"fgLpkvgn{ "o cmg"wug"qh"vjg"v y q"tguqwtegu" o gpvkqpgf"
rtgxkqwun{"*PGV/UP OR" y gdukv g"cpf"Guugpvkcn"UP OR+"cpf"uvvf{ "vjg" o "ectghwnn{0""Vjgtg"ctg"tcvjgt"
gncdqtcvg"eqpL i wtcvkqp"qr vkqu"cxckncdng" y jgp" {qw"ctg"wukpi" x50""Vjg"kpuvtwekqp"rtgugpvgf"jgtg" y knn"
ikxg" {qw"vjg" lcxqt"qh"vjg"eqpL i wtcvkqp"dww"fgLpkvgn{ "pqv"vjg"hwmm"ueqrg"qh"rquukdknkvgu0""Vq"ceeguu"
{qwt"HFE"xkc"x5"qh"UP OR." {qw" y knn" j cxg"vq"eqpL i wtg"v y q"Lngu<
```

```
lgvelup o r f l e q p h
ldqqv l p g v / u p o r l u p o r f l e q p h
```

```
Vjg"Łtuv"Łng"eqpvckpu"uvckv"eqpL i wtcvkqp"rctc o gvgtu"vjcv"vjg"ci gpv"wugu"vq"eqpvtqn"ceeguu"cpf"vq" fg/
vgt o kpg" y jgtg"vq"ugpf"pqvLecvkqpulvtcrul0""Qvjgt"curgevu"qh"vjg"ci gpvv"qrgtcvkqp"ctg"cnug"eqpL i wtcvng"
kp"vjku"Łng."dww" {qw"ujqwnf"pqv"pggf"vq" o qfkh{ "vjqug0""Vq"wug"vjg"UP ORx5"ecrcdknkvgu"qh"vjg"HFE."
{qw" o wuv"Łtuv"ugv"wr" wugt" kphqt o cvkqp"cpf" ceeguu"nk o kvu" hqt"vj qug" wugtu"kp"lgvelup o r f l e q p h0""Wpeq o /
o gpv"cpf" gfk"vjgug"v y q"nkpgu"vq" fgLpg" {qwt"x5" wugtu"cpf"vjgkt"ceeguu"rctc o gvgtu<
```

```
Vjg"Łtuv"nkpg"fgLpgu"ci"UP ORx5"tgcf/ y tkvg" wugt" tqqv" y jqug" o kpk o w o "ugewtkv{ "ngxgn" y knn"dg"cwvj gpvk/
ecvfg"cpf" gpet{ rvvgf" hqt" rtkxce{ "*ejqkegu"ctg"pqcvj."cwvj"cpf" rtkx+."cpf" y j q" y knn" j cxg"tgcf/ y tkvg"ce/
eguu"vq"vjg"gpvktg"kuq*3+"dtpcej"qh"vjg"UOK"qdlgev"vtgg0""Vjg"ugeqpf"nkpg"fgLpgu"ci"UP ORx5"tgcf/ qpn{ "
wugt"u"uwugt" y jqug" o kpk o w o "ugewtkv{ "ngxgn" y knn"dg"cwvj gpvkcvgf"dwv"pqv" gpet{ rvvgf."cpf" y j q" y knn"
j cxg"tgcf/ qpn{ "ceeguu"vq"vjg"gpvktg"kuq*3+0qti*5+0fqf*8+0kpvgtpgv*3+0rtkxcvg*6+0gpvgt rtkugu*3+0gpfTwp/
Vgejppnq i kguOKD*35: 49+"dtpcej"qh"vjg"UOK"qdlgev"vtgg0""Chvgt"cf f kpi"vjg" wugt"nkpgu"vq"lgvel
up o r f l e q p h."eqr{ "kv"vq"vjg"ldqqv l g v e" fktgevqt{ "wukpi" 0
```

```
Vjg"ugeqpf"Łng"ku"nqecvfg"qp"vjg"pqp/xqncvknng"HNCUJ" f kum"cpf"ku" wugf"d{ "vjg"UP OR"ci gpv"vq"uvqtg"
ōrgtukuvgpv"fcvcö"vjcv" o c{ "dg" f {pc o ke"kp"pcvwtg0""Vjku" o c{ "kpenwfg"vjg"xcnwgu"qh"vjg"OKD/KK"xctkcdngu"
u{uNqecvkqp."u{uEqpvcev"cpf"u{uPc o g"cu" y gmm"cu"cp{ "eqpL i wtgf"UP ORx5" wugt"et{ rvq"mg{ u0""Kp"qtfgt"
vq" wug"UP ORx5." {qw" o wuv"eqpL i wtg" wugt"mg{u"kp"vjku"Łng" hqt" gcej"UP ORx5" wugt"vjcv" {qw" j cxg"ugv"wr"
kp"lgvelup o r f l e q p h0""Vq"fq"vjku." {qw" o wuv" c f f "nkpgu"vq"ldqqv l p g v / u p o r l u p o r f l e q p h""nkmg"v j g u g" h q t" g c e j"
wugt<
```

```
Vjg"Łtuv"nkpg" y knn"ecwug"vjg"ci gpv." "vq"etgcvg"ci" wugt" tqqv" y j q" o c{ "dg"cwvj gpvkcvgf"xkc"Ogu/
ucig" Fki guv" Cni qtkvj o "7"*OF7+" ykvj"rcuuyqtf"gpftwpa3"cpf" o c{ "wug"vjg" Fvcv" Gpet{ rvkqp"Uvcpfctf"
*FGU+"vq" gpet{ rv"vjg" uguukp"fcvc" y kvj"rcuurjtcug"gpftwpa30""Vjg"ugeqpf"nkpg" y knn"ecwug"ci" wugt"u"u/
```


Vjku"rcig"kpvgpvkqpcnn{"nghv"dncpm0

Linux Operating System

```
Vjg"Nkpwz"qrgtcvki"u{uvgo"xtukqpu"ctg"ujqyp"kp"Crrgpfkz"G"/"Urgkhhkecvkqpu0""Nkpwz"uwr rqtvu"c"
eqo rnvgn"ugv"qh"ugewtkv{"rtqkukqpu<
```

```
U{uvgo"rcuuyqtfu"ctg"mgrv"kp"cp"gpet{rvgf"Łng."lgvelujcfqy"y jkej"ku"pqv"ceeguukdng"d{"wugtu"qvjgt"
vjcp"tqq0
```

```
Fktgev"tqq"nqikpu"ctg"qpn{"rgto kwgf"qp"vjg"nqecn"TU/454"eququng"qt"xlc"UUJ0
```

```
Vjg"ugewtg"eqr{"wknkv{." .gnko kpcvgu"vjg"pggf"vq"wug"vjg"kpugewtg"HVR"rtqvqeqn"ht"vtcpuhgttkpi"
rtqitco"wr fcvgu"vq"vjg"HFE0
```

```
Ceeguu"xlc"JVVRU"oc{"dg"tguvtkevgf"qt"eqo rnvgn{"fkucdngf0""Ugg"Fkucdng"UPOR"UUJ"cpf"
JVVRU"kp"vjku"ejcrvgt"qt"Ejcrvgt"8"/"JVVRU"JVVRU"Kpvgthceg."Tguvtkev"Ceeguu0
```

```
UPOR"ceeguu"ht"u{uvgo"o qpkvtkpi"qpn{."ku"eqpŁiwtdng"vq"rtqkfg"vjg"ugewtkv{"qh"vjg"ncvuv"xgt/
ukqp"5"Kpvgtpgv"uvcpfctf"y jkej"uwr rqtvu"dqvj"xkg y/dcugf"ceeguu"eqpvtqn"cpf"wugt/dcugf"ugewtkv{"wukpi"
o qfgtp"gpet{rvkqp"vgejpkswgu0""Rtgxkqwu"xtukqpu"x3"cpf"x4e"uwr rqtvgf"ceeguu"eqpvtqn"guugpvkcm{"
xlc"rcuuyqtfu"vtcpuokwgf"qxt"vjg"pgv y qtm"kp"rncp"vgzv0""Tghgt"vq"Ejcrvgt"6"/"UPOR"cpf"Tguvtkev"
Ceeguu"Vgnpgv."UUJ"cpf"UPOR"*dgnqy+"ht"fgvcknu0""UPOR"oc{"cnuq"dg"eqo rnvgn{"fkucdngf0""Ugg"
Fkucdng"UPOR"UUJ"cpf"JVVRU"dgnqy0
```

```
Kpfkxkfwcn"jquv"ceeguu"vq"rtqvqeqn"ugtugt"fcgo qpu" " "qt" "ctg"eqpvtqmgf"d{"
fktgevixgu"eqpvckpgf"kp"vjg"Łngu"lgveljqvu0cnnqy"cpf"lgveljqvu0fgpf. y jkej"ctg"eqpŁiwtgf"wukpi"vjg"
kpvgtcevkxg"uetkrv "Ugg"Tguvtkev"Ceeguu"/"Vgnpgv."UUJ"cpf"UPOR"dgnqy0
```

```
Kpugewtg"rtqvqeqnu"nkmg"Vkog."Fc{vkog"cpf"Vgnpgv"oc{"dg"eqo rnvgn{"fkucdngf"d{"eqpŁiwtcvkqp"qh"
vjg" "uwr gt/ugtugt"fcgo qp"wukpi"vjg"kpvtcevkxg"uetkrv" 0""Ugg"Fkucdng"Vgnpgv."Vkog"
cpf"Fc{vkog"dgnqy0""
```

Restrict Access

```
Vjg"hqmqy kpi"rtctictcrju"fguetkdg"jqy"vq"tguvtkev"UPOR"UUJ."cpf"Vgnpgv"vq"urgekŁe"jqvu0""Hqt"
kpvtwekqpu"qp"jqy"vq"tguvtkev"JVVRU"cpf"PVRCeeguu"ugg"Ejcrvgt"8"/"JVVRU"JVVRU"Kpvgthceg."
Tguvtkev"Ceeguu"cpf"Ejcrvgt"9"/"PVR"Tguvtkev"Swtg{"Ceeguu0
```

Restrict Access - Telnet, SSH and SNMP

```
D{"fghcwnv."vjg"HFE"ku"eqpŁiwtf"vq"cnqy"ceeguu"d{"cnn"wugtu"xlc"Vgnpgv."UUJ"cpf"UPOR""Vq"gpwtg"
ugewtkv{"cpf"vq"rtqvgev"cikpuv"fgpkcn/qh/ugtuxe"cwcmu."{qw"ujqwnf"tguvtkev"ceeguu"d{"wukpi"vjg"
"eqo o cpf0""
```

```
"o qfkŁgu"vyq"Łngu."lgveljqvu0cnnqy"cpf"lgveljqvu0fgpf."y jkej"ctg"wugf"d{" "cpf"
vjg"uvcpfcnqpg"fcgo qpu."" "cpf" .vq"fgvgtokpg"y jgvjgt"qt"pqv"vq"itcpv"ceeguu"vq"ctgswguv/
kpi"jqvu0""Vjgug"vyq"Łngu"oc{"eqpvckp"eqpŁiwtcvkqp"kphtocvkqp"ht"c"pwodgt"qh"rtqvqeqn"ugtugt."
dww"kp"vjg"HFE"qpn{"ceeguu"eqpvtqn"vq"vjg"rtqvqeqn"ugtugt"fcgo qpu" . " "cpf" "ku"
eqpŁiwtf0
```


Network Security Vulnerabilities

GpfTwp"cf ftguugu" o clqt"pgvy qtm"ugewtkv{"xwnpgtcdknkvkgu"vjcv" o c{"chhgev"HFE"cv"vjg"vqr"qh"vjku"ygd/
rcig<"

" jwr<ll y y0gpftwpvgejppnqikgu0eq o lhud0jv o

Vjku"rcrgt"fguetkdgu"dguv"rtcevkegu"vq"ugewtg"{qwt"vk o g"ugtugt"cpf" o kvk i cvg" o cp{"pgvy qtm"ugewtkv{"
xwnpgtcdknkvkgu<"

" jwr<ll y y0gpftwpvgejppnqikgu0eq o lrfhlCrrPqvgUgewtkv{0rfh



Configure HTTPS

J VVRl J VVRU" wug" Lngu" hqt" v j g" fghcwnv" eqpL i wtcvkqp" nqecvfg" kp" lgvcljkc y cvj c0" Qh" v j g u g . " { q w" y k n n" v { r k e c n n { " q p n { " p g g f" v q" o q f k h { " j k c y c v j c l e q p h 0" " C f x c p e g f" w u g t u" y j q" p g g f" v q" o q f k h { " v j g" f g h c w n v" e q p / L i w t c v k q p" y k n n" p g g f" v q" g f k v" v j g" L n g" c p f" e q r { " k v" v q" v j g" l d q q v l g v e l j k c y c v j c" f k t g e v q t { 0" " F q" p q v" c w g o r v" v q" e j c p i g" v j g" f k t g e v k x g u" w p n g u u" { q w" j c x g" c" t g c n" p g g f" v q" f q" u q 0" " * U g g" **C r r g p f k z" E" / " J g n r h w n" N k p w z" k p h q t o c v k q p . " V g z v" G f k v q t u 0** +

Vq" eqpL i w t g" J V V R U" * J V V R" g p e t { r v g f" x k c" V N U + . " { q w" y k n n" p g g f" v q" o q f k h { " j k c y c v j c l e q p h 0" " Y j g p" e q p / L i w t g f . " c" J V V R" t g s w g u v" y k n n" d g" t g f k t g e v g f" v q" J V V R U 0" " [q w" o w u v" g f k v" v j g" l g v e l j k c y c v j c l j k c y c v j c l e q p h" L n g" c p f" e q p L i w t g" c u" u j q y p" d g n q y 0

Configure HTTPS only for IPv4

[q w" o w u v" g f k v" v j g" l g v e l j k c y c v j c l j k c y c v j c l e q p h" L n g" c p f" u g v" v j g" J q u v p c o g" k p" v j g" X k t

O

Vjg"Łng"yknn"dg"etgcvgf"kp"vjg"ldqqvlgveljkeycvjclmu"fktgevqt{0"" [qw"owuv"tgdqqv"vjg"HFE"hqt"ejcpigu"
vq"vcmg"ghhgev0""

NOTE

"

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Jgtg"ku"cp"gzco rng<



CAUTION

Some browsers will automatically unzip the file when downloading from the website. Please make sure that the downloaded file size matches what the website says it should be. Upgrading the partition with a too-large file size will cause problems.

Transfer File to FDC

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Recovering from a Failed RFS Upgrade

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Łng"u{uvgo "writc"fg"cpf"tg/rgthqt"o"kv0

Performing the Linux Kernel Upgrade

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pgvy qtm" y jkej"ku"ceeguukdng"vq"vjg"HFE0""Vjg"nkpm"vq"vjg"HFE"wr itcfg"rcig"ku"ujqyp"cdqxg0""

Transfer File to FDC

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Problems with the Distribution Subsystem Upgrade

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Vjku"rcig"kpvgpvkqpcnn{"nghv"dncpm0



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Change Password

Vjku"eqo ocpf"ku"wgf"vq"ejcpi"z

Text Editors

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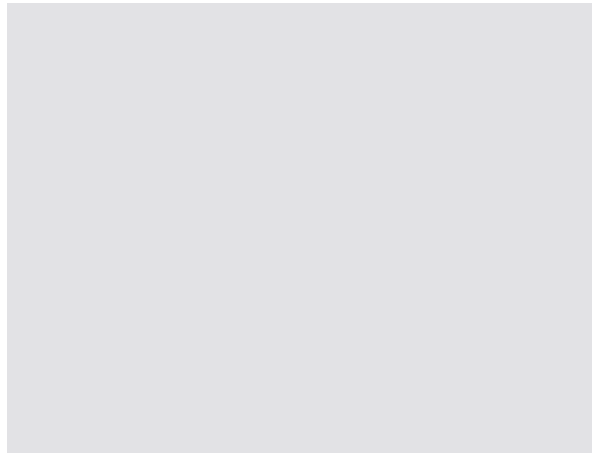
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