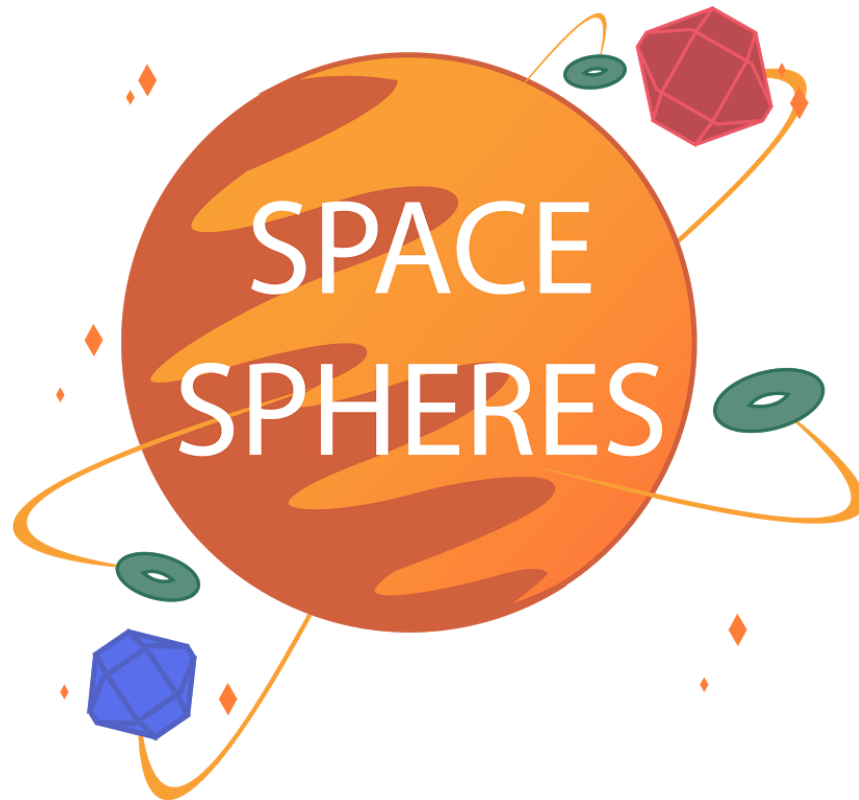


ZERO ROBOTICS

HS TOURNAMENT 2016

Game Manual

Ver. 3.1.1



SPACE-S (Satellite Positioning and Constructing Entities - SPHERES)

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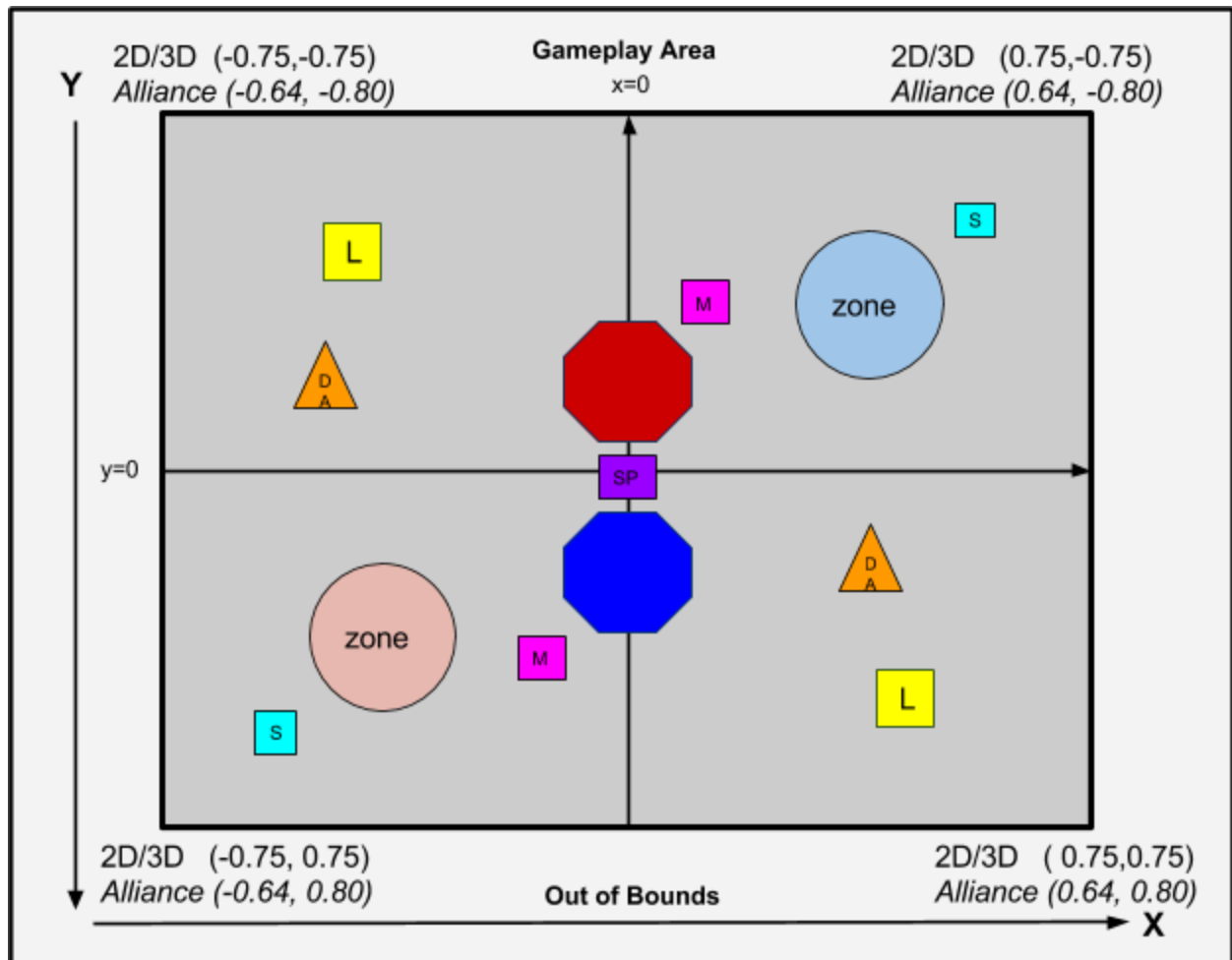
4. Revision History

"

ZRHS 2016 Game Manual

30I co g'Qxgtxkgy '''

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S: Small, M: Medium, L: Large, SP: Special, DA: Docking Adapter

Diagram not to scale

"

O cvej gu'qh'URCEG/URJ GTGU'y kn'dg'r r{ gf "dgy ggp'y q"URJ GTGU."eqpvtqngf "d{ 'r tqi tco u'y tkwgp"d{ "



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SPACE-SPHERES; Ua Y'A Ubi U"

wy q'ugr ctcvg'vgo u0Gcej 'vgo 'y kmleqo r gvq'v'j cxg'v'j g'o quv'r qkpw'y j gp'v'j g'tqwpf 'vko g'ku'wr 0Gcej " tqwpf 'rcuu'3: 2'ugeqpf u0Rqkpw'o c{ 'dg'i gpgtcvgf 'd{ 'eqmgev'kpi 'v'j g'kgo u'*tgr tgugpv'kpi 'v'j g'ucvgnkg" r kgegu'ur tgc'f 'cetquu'v'j g'r r c{ kpi 'hgrf 'cpf 'f tqr r kpi 'v'j go 'qhh'kpkf g'qpgau'cuugo dn{ 'l qpg. 'tgr tgugpv'kpi 'v'j g' kf gcnr' rceg'v'q'eqpust wev'c'ucvgnkg0"

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30B'Ucvgnkg'Rqukkqkpi 'U{ uvgo '*URU+'kgo u"

Cv'v'j g'unctv'qh'v'j g'i co g.'v'j g'g'ctg'v'j tgg'Ucvgnkg'Rqukkqkpi 'U{ uvgo '*URU+'kgo u'i kxgp'v'q'gcej 'URJ GTG0' Vgco u'p'ggf 'v'q'r rceg'v'j gug'v'j tgg'URU'kgo u'ht'cr ctv'v'q'hqto 'c'v'k'kpi rg=v'j g'ctgc'qh'v'j g'URU/v'k'kpi wv'v'gf " tgi kpp'ku'wugf 'v'q'ecre'w'v'v'j g'gttqt'tcf kuu'v'j cv'f'gv'to kpgu'v'j g'v'gco au'g'v'ko cv'gf 'cuugo dn{ 'l qpg0V'j g' i tgc'v'gt'v'j g'ctgc'ku.'v'j g'o qtg'r tgekugn{ 'v'j g{ 'y km'dg'kphqto gf 'qh'v'j g'h'q'ec'v'k'p'qh'v'j gk'URCEG/U0'cuugo dn{ 'l | qpg0T'gcf 'o qtg'cdq'w'URU'kgo u'kp'uge'v'k'p'30B'cpf 'cuugo dn{ 'l qpgu'kp'uge'v'k'p'30B0"

30B0'Cuugo dn{ '\ qpgu"

V'j g'cuugo dn{ 'l qpg'ku'c'ur j g'k'ec'n'h'q'ec'v'k'p'y j kej 'f'q'gu'p'q'v'k'p'v'g't'g't'g'y kj 'gz'k'k'k'pi 'ucvgnkg'qtdku.'cu'ej qugp" t'c'p'f'q'o n{ 'ht'q'o 'c'ur gek'k'le't'c'p'i g'qh'eq'q'f'k'p'c'v'g'u'0'k'ku'cdq'w'v'j g'uk'k' g'qh'q'p'g'URCEG/U.'y kj 'c'f'k'co g'v'gt'qh' 20'0'o g'v'g'tu'0'Q'p'eg'cm'v'j tgg'URU'kgo u'ctg'r rceg'f.'v'j g'r r c{ g't'v' km'dg'cdng'v'q'w'ug'v'j g'h'w'p'ev'k'p'â~-->Á &á ↑ æ Æ & æ \ X ~ ^ æ Ç â → ~ á \ Á ~ ~ ^ æ Ø ^ â ~ YHÿD 'v'q'h'g'c't'p'v'j g'g'v'ko cv'gf 'l qpg.'v'j cv'ku'c'ur j g'k'ec'n'q'p'g'y kj k'p" c'egt'v'k'p'tcf kuu'qh'gttqt'ht'q'o 'v'j g'v'w'g'eg'p'v'gt'qh'v'j gk'cuugo dn{ 'l qpg0V'j g'tcf kuu'qh'gttqt'qh'v'j g'g'v'ko cv'gf " | qpg'y km'dg'ecre'w'v'gf 'cu'k'p'x'g't'ug'n{ 'r tqr qt'v'k'p'c'n'v'q'v'j g'ctgc'qh'v'j g'v'k'k'p'i rg'hqto gf 'd{ 'v'j g'URU0'

SPACE-SPHERES; Ua Y'A Ubi U"

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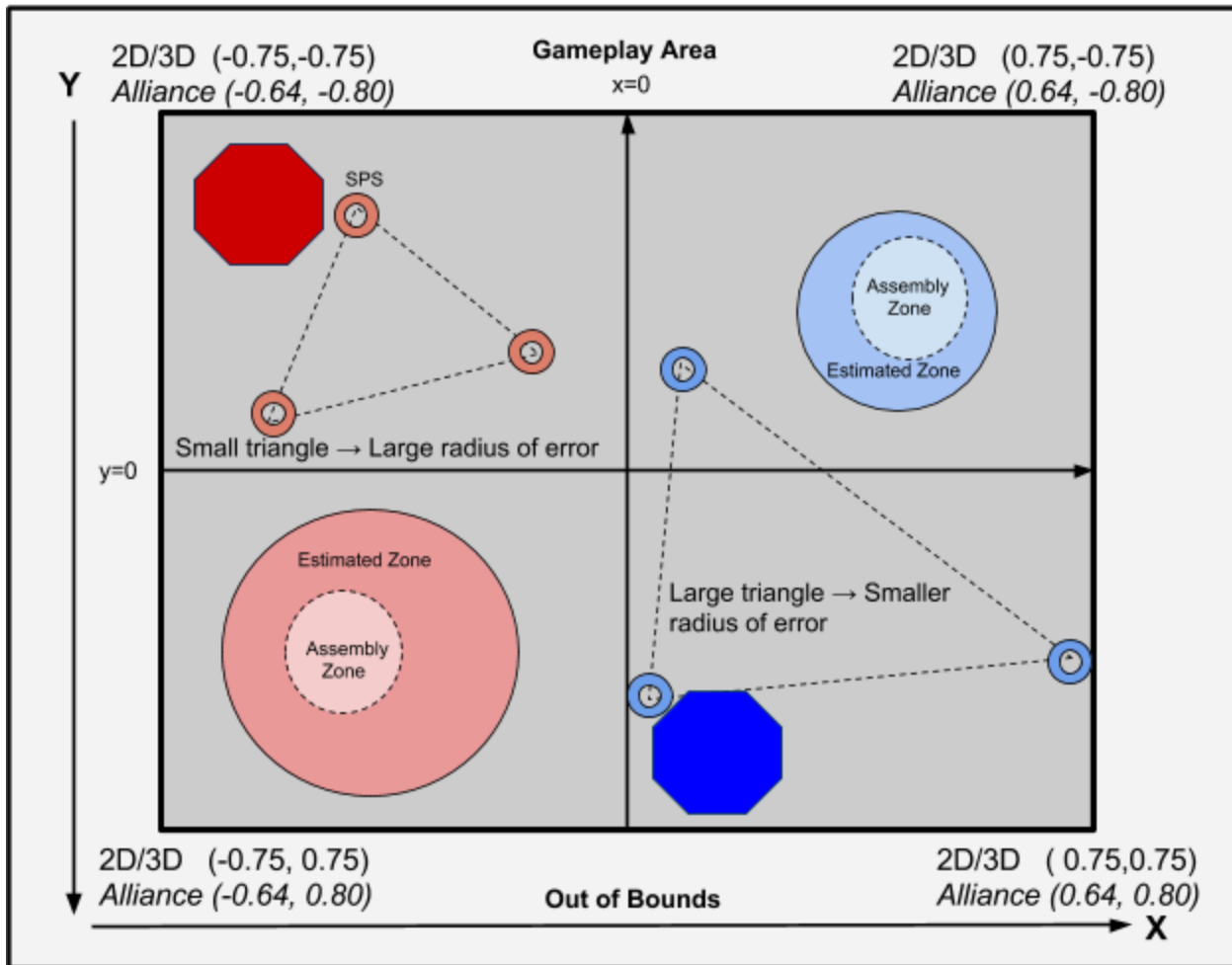


Diagram not to scale

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SPACE-SPHERES'; Ua Y'A Ubi U''

3006'Nqecvqpu'qh'Kgo u'cpf 'URCEG/U'

Vj g'iqecvqpu'qh'ucvgnkg'kgo u.'cpf 'y g'qr r qpgpv'URCEG/U'ctg'tgxcngf 'v'j g'vgo u'Vgco u'gpvt 'y g' ur gekkfg 'kgo 'Kf au'f guetkdgf 'kp'ugevqp'3006+'cpf 'wug'vj g'hwpevqp''{ ~->äÄ&æ\Ø\æ↑Q~´ Çâ->~á\ Ä *~bYÿÊÄ&^ \Ä&^ \æ↑ØEDÄ 'v'i g'vj g'iqecvqpu'qh'vj g'kgo 0C'URCEG/U'ecp'o qxg'cp{y j gtg'qp'y g'o cr '' cpf 'j cxg'hkzgf 'kp'kknr qukvpu'f guetkdgf 'kp'ugevqp'3007+0'

3007'F qenkpi ''

Vq'r leniwr 'c'ucvgnkg'r kgeg.'c'URCEG/U'pggf u'v'cr r tqcej 'y g'kgo .'uqy 'f qy p'v'dgnry '03o lu.'dg' r qkvkpi 'cv'y g'kgo 'cpf 'ecnkpi 'y g'f qenkpi 'hwpevqp'0'Vj g'URCEG/U'pggf u'v'uvqr 'kp'htqpv'qh'y g'kgo 'cv'c'' egtvcp'f kvcepg'v'r leniwr 'cpf 'y g'kgo 'y kn'dg'tgrcugf 'cv'y g'uco g'f kvcepg'cy c{ 'f guetkdgf 'kp'ugevqp' 3004+0''

Cp'cf f kvkpnitgs wkt go gpv'kp'vj g'Cmkpeg'i co g'ku'vj cv'c'URCEG/U'pggf u'v'cr r tqcej 'y g'ðeqttgew'ukf g'qh' vj g'kgo . 'o ctmgf 'y kj 'c'f khtgpv'eqmt 'y cp'tguv'qh'y g'kgo u'f guetkdgf 'kp'ugevqp'3004+0'Vj ku'tgs wkt go gpv' cr r kgu'v'cm'dw'vj g'Ur geknkgo 0''

Kp'dqvj 'y g'5F 'i co g'cpf 'Cmkpeg'i co gu'c'r gpcn'f 'ku'cf f gf 'hqt'f qenkpi 'kpeqttgew'f 'cnuq'f guetkdgf 'kp' ugevqp'3004+''

3008'F qenkpi 'Cf cr vgtu''

Vy q'F qenkpi 'Cf cr vgtu'ctg'cf f gf 'f wtkpi 'y g'Cmkpeg'i co g'0'K'c'URCEG/U'r leniwr 'c'F qenkpi 'Cf cr vgt. 'k' y kn'dg'cdng'v'f qem'v'vj g'Ur geknkgo 0'K'ku'pqvr qukdng'v'f qem'y kj 'y g'Ur geknkgo 'y kj qw'vj g' F qenkpi 'Cf cr vgt'0'Vj g'F qenkpi 'Cf cr vgt'cmjy u'vj g'URCEG/U'v'r leniwr 'y g'Ur geknkgo 'Itqo 'cp'f 'ukf g'0' Y j gp'c'URCEG/U'r leniwr 'y g'ur geknkgo 'dghqtg'y g'gpf 'qh'vj g'i co g.'k'y kn'tgegk'g'c'qpg'v'o g'r qkv' dqpwu'hqt'r tktk'k'pi 'y ku'ko r qtvcv'ucvgnkg'r kgeg'0''

Vj g'vy q'F qenkpi 'Cf cr vgtu'ctg'r megf 'u'o o g'vkcm'f 'cdq'w'vj g'qtki kp'0'K'kknr qukv'ku'tcpf qo n'f ' cu'ki pgf 0'Wug'vj g'hwpevqp''{ ~->äÄ&æ\Ø\æ↑Q~´ Çâ->~á\ Ä *~bYÿÊÄ&^ \Ä&^ \æ↑ØED 'v'iqecv'g' F qenkpi 'Cf cr vgtu'

C'r r {gt'b c'f'r leniwr '2.'3.'qt'4'F qenkpi 'Cf cr vgtu'0'Qpn'f 'qpg'F qenkpi 'Cf cr vgt'ku'tgs wkt gf 'v'f qem'y kj '' y g'Ur geknkgo 0'Qpeg'r lengf 'wr . 'y g'F qenkpi 'Cf cr vgt'kp'pq'rupi gt'cxck'rdng'hqt'r leniwr 'ci ckp'0'

3009'Ur geknkgo ''

Kp'vj g'Cmkpeg'i co g.'c'pgy 'Uc'vgnkg'Rlgeg'kgo 'ku'cf f gf 0'Vj ku'kgo 'ku'f guki pcv'f 'c'Ur geknkgo 0'Vj g' Ur geknkgo 'ku'vj g'qdlgev'vj g'Gct'y 'I qxgtpkpi 'U'f ugo u'hkp'f u'v'dg'vj g'o quv'ko r qtvcv'hqt'vj g'i co g'0'Vj g' Ur geknkgo 'ku'f gp'vkn'v'c'uo cmlkgo 'gzegr v'vj cv'c'F qenkpi 'Cf cr vgt'ku'pggf gf 'v'f qem'y kj 'c'Ur geknk' Kgo 0'Ur geknkgo u'ctg'y qt'y '5'r qkv'y j gp'r lengf 'wr 0'Vj ku'dqpwu'ku'qpn'f 'cy ctf gf 'y g'htu'v'ko g'k'ku' gxgt'r lengf 'wr 0'Y j gp'vj g'Ur geknkgo 'ku'f tq'r gf 'kp'f'qwt'Cuugo dn'f '\ qpg'k'g'ctpu'vj g'uco g'r qkv'w'ugeqpf '' cu'vj g'qvj gt'uo cmlkgo u'0'

SPACE-SPHERES; Ua Y'A Ubi U''

304'I co g'Nc{qww'

Vj g'\ gtq'Tqdq\ku'J ki j 'Uej qqn'Vqwtqpcu gpv'4238'y km'dg'eqpf wexgf 'kp'uko wrcvqp0'Vj g'i co g'ku'r r{ gf 'kp' cp'ctgc'ecmgf 'yj g'k'pvtcevkqp\ qpg0'k'r r{ gtu'ngcxg'yj g'k'pvtcevkqp\ qpg. 'yj g{ 'y km'dg'eqpukf gtgf 'qw'qh' dqwpf u0'Vj g'necvkqp'qh'yj g'URJ GTGU'ku'o gcuwtgf 'Itqo 'yj g'egpvt'qh'yj g'ucvgnksg0'

Vj g'k'pvtcevkqp\ qpg'hqt'yj g'i co g'j cu'yj g'hqmyy kpi 'f ko gpukqpu<

Vcdng'3<k'pvtcevkqp\ qpg'F ko gpukqpu"

	2D	3D	Alliance
Z"jo _"]207"z- 207_"]207"z- 207_"]2086"z- 2086_"
["jo _"]207"z- 207_"]207"z- 207_"]202"z- 202_"
\]o _"	20"]207"z- 207_"]2086"z- 2086_"

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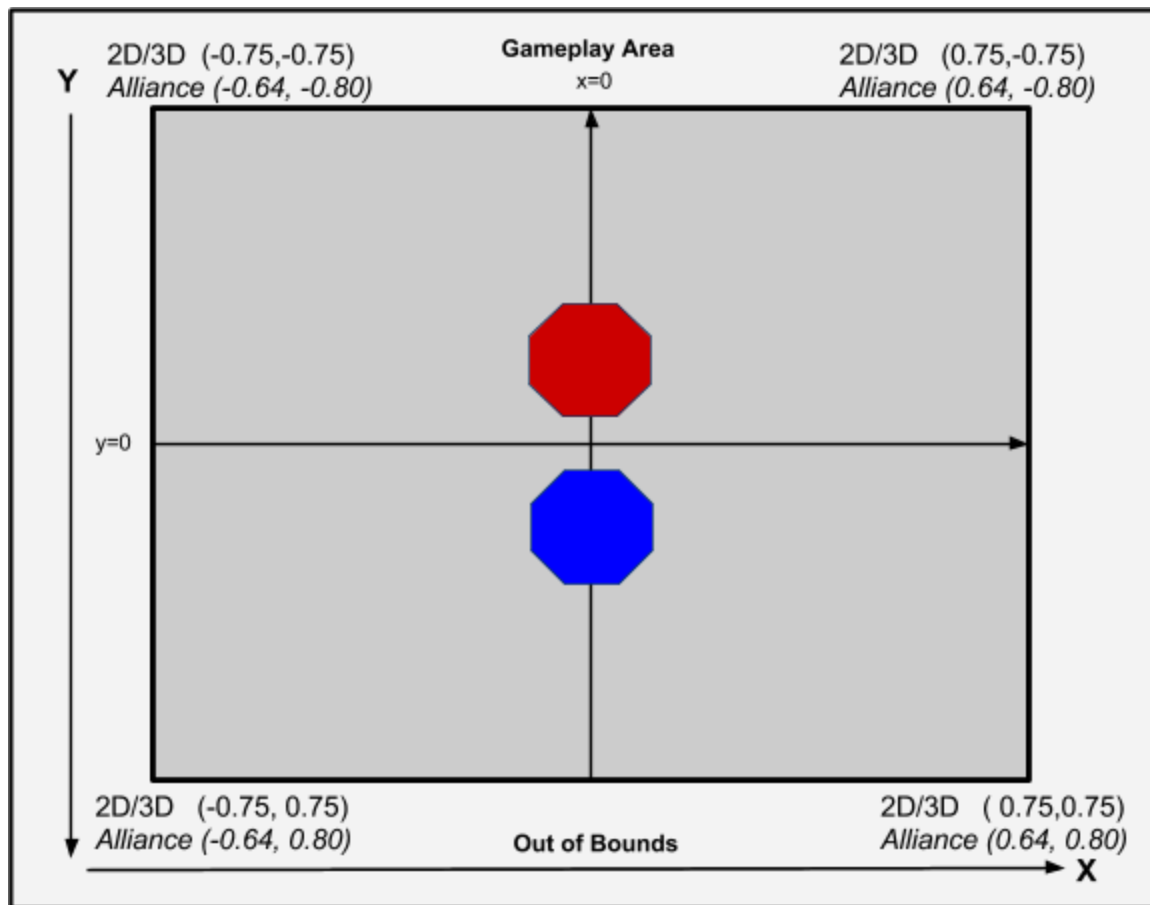


Diagram not to scale

SPACE-SPHERES; Ua Y'A Ubi U"

4F "Rj cug"

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5F "Rj cug"

Htqo 'y g'5F 'r j cug'qpy ctf u.'y g' \ 'f ko gpukqp'ku'qr gpg'f 'wr 'hqt'o qxgo gpv'cpf 'ugxgtcn'pgy 'o gej cpleu'y kni dg'kptqf wegf 0Vj g'5F 'r j cug'c'f f u'r gpcnk'gu'hqt'c'+ecn'kpi 'y g'f qem'hwpev'kqp'y j gp'f qem'kpi 'etkgtk'c'tg'bpv' o gv.'d'+eqnkf kpi 'y kj 'kgo u.'cpf 'e'+hqt'uc' { kpi 'kp'y g'qr r qpgp'w'u'cuugo dn' 'l' qpg'hqt'kpi gt'y cp'32" ewo wrc'kxg'ugeqpf u'0Ugg'ugev'kqp'30607'hqt'o qtg'kphqto cvkqp'cdq'w'r gpcnk'gu'0"

"

Alliance Phase

I co g'ej'cpi gu'hqt'y g'cnk'peg'r j cug'kpen'f g'<

- Vj g'cnk'peg'i co g'c'f f u'y q'pgy 'kgo 'v' r gu.'F qem'kpi 'C'f cr vgtu'cpf 'c'Ur gekn'kgo .'cu'f guet'kd'gf " gctn'kt'kp'ugev'kqp'30608'cpf'30600C'URCEG/U'y knidg'cy ctf gf 'dqp'w'u'r qkpw'hqt'r ken'kpi 'wr 'y g' Ur gekn'kgo 0T'gcf 'o qtg'cdq'w'y j g'y q'pgy 'kgo 'v' r gu'kp'ugev'kqp'30605"
- Kp'y g'cnk'peg'i co g.'cm'Uc'v'gn'k'g'kgo u.'gzegr v'y g'Ur gekn'kgo .'ecp'qpn' 'dg'f qem'f 'htqo 'qpg' ukf g0Vj g'Ur gekn'kgo 'ecp'dg'f qem'f 'htqo 'cp' { 'ukf g0Ugg'f gv'k'u'kp'ugev'kqp'30604"
- Kp'y g'cnk'peg'i co g'y g'kgo u'j cxg'k'p'gt'vc'y j gp't'g'rcug'f 'htqo 'c'o q'x'kpi 'URCEG/U'cu'f guet'kd'gf " kp'ugev'kqp'30604"

305 "Uc'v'gn'k'g"

Gcej 'v'go 'y kn'y tkv'g'y g'uq'h'y ctg'v'q'eqo o cpf 'c'URJ GTGU'uc'v'gn'k'g'v'q'o q'x'g'kp'q'f'gt'v'q'eqo r ngv'y j g" i co g'v'cum'0C'URJ GTGU'uc'v'gn'k'g'ecp'o q'x'g'kp'cm'f kt'g'ev'k'p'u'w'kpi 'ku'y g'x'g'y j t'w'v'gtu'0Vj g'ce'w'cn' URJ GTGU'uc'v'gn'k'g.'tkng'cp' { 'q'y gt'ur ceget'ch'j cu'c'hwgn'u'q'w'teg' *kp'y ku'ecug'hts w'f 'ectd'qp'f kqz'kf g'+cpf 'c" r qy gt'u'q'w'teg' *kp'y ku'ecug'CC'dc'w'gt' { 'r cem'u'0Vj gug't'gu'q'w'tegu'ctg'ht'o k'g'f 'cpf' "o w'v'dg'w'ug'f 'y kug'n' 0' Vj gt'gh'q'tg.'y g'r r { 'gtu'q'h' \ gtq'T'qd'q'v'leu'ctg'ht'o k'g'f 'kp'y g'w'ug'q'h't'g'cn'hwgn'cpf 'dc'w'gt'k'gu'd' { 'x'k'w'cn'ht'o ku" y kj kp'y g'i co g0Vj ku'ugev'kqp'f guet'kd'gu'y g'ht'o ku'v'q'y j kej 'r r' { 'gtu'o w'v'cf' j gt'g'v'q'y kug'n' 'w'ug't'g'cn' URJ GTGU't'gu'q'w'tegu'0"

306 \ T "W'ugt'CRK"

J gtg'ku'c'ht'w'q'h'hwpev'k'p'u'cx'k'cd'ng'kp'y ku' { gct'au'i co g0F gv'k'u'ecp'dg'ht'q'w'pf 'kp'y g'URCEG/URJ GTGU" CRK'ht'q'w'pf 'kp'V'cd'ng'4-0'kp'q'f'gt'v'q'w'ug'y j gug'hwpev'k'p'u.'w'ug'y g'u' { p'vcz' 'i co g'hwpev'k'p'P co g'k'p'r w'u-0"

Hqt "gzco r ng'f co gf qem'kgo *+"

Hqt 'hwpev'k'p'u'pq'v'ht'k'ug'f 'kp'V'cd'ng'4.'w'ug'y g'u' { p'vcz' 'cr k'hwpev'k'p'P co g'k'p'r w'u-.'w'p'ng'u'u'y j g' { 'ctg'o cv'j " hwpev'k'p'u.'y j kej 'ecp'dg'ec'ng'f 'y kj q'w't'gh'gt'g'peg'v'q'y g'k'p'uc'peg'0"

Hqt "gzco r ng'f cr k'ug'R'qu'k'k'p'V'cti gv'ht'q'cv'r qu'V'cti gv'5_+ " " " "



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I gpgtle \ T''wugt'CRKNkpm'j wr <luvcvke0 gtqtqddvkeu0 k0gf wlf qeulwwqtkeni\ TawugtaCRK f h''

Vcdng'4<URCEG/URJ GTGU'CRKT ghgt gpeg''

P co g''	F guetkr vkqp''
dqqnkuhceki Eqttgevkgo Uf g'kpv'kgo K+''	Tgwtpu'tvg'h'ij g'r n{ gt'ku'hceki 'vj g'eqttgevu'kf g'qh'ij g'kgo 'hqt' f qenki 0'
dqqnj cuCf cr vgt*+''	Tgwtpu'tvg'h'ij g'r n{ gt'ku'j qif kpi 'cv'gcu'v'p'g'f qenki 'cf cr vgt=*+'' hcnug'q'ij gty kug0'
dqqn'f qenKgo *+''	Tgwtpu'tvg'h'ij n{ gt'r lemi'wr 'cp'kgo 'uweeguuhwn' " Cwgo r w'v'q'r lemi'wr 'ij g'kgo 'emuguv'v'q'ij g'URJ GTGO'
dqqn'f qenKgo *kpv'kgo K+''	Tgwtpu'tvg'h'ij n{ gt'r lemi'wr 'ur gekhle'kgo 'uweeguuhwn' " Y kni'q'ni' 'cvgo r v'v'q'f qenij k'ij g'kgo K+'' ur gekh'gf " B r ctco 'kgo K+'' 'Vj g'kpv'ij gt'kf gp'v'h'gt'qh'ic'ij kxgp'kgo 0'
xqkf 'f tqr Kgo *+''	F tqr u'ij g'kgo 'ij cv'ij g'ur j gt'ku'ewt'g'p'v'ij 'j qif kpi "
kpv'ij g'p wo Kgo *+''	Tgwtpu'ij g'pwo dgt'qh'v'q'v'kgo u'k'p'r n{ . 'y j gv'ij g'ij g'ij 'cxg' dggp'r lengf 'wr ' { gv'qt'pqv0''
xqkf 'ij g'kgo Nqe'k'ncv'r qu]_ 'kpv'kgo K+''	Eqr kgu'ij g'ij q'ec'v'q'p'qh'ic'ij kxgp'kgo 'kpv'ij g'ij kxgp'cttc' { 0' B r ctco 'r qu'C'r q'k'v'gt'v'q'cp'cttc' { 'qh'uk' g'5'y j lej 'y knidg' q'x'gty tkv'gp'd' { 'ij g'kgo 'ij q'ec'v'q'p'0' B r ctco 'kgo K+'' 'Vj g'kpv'ij gt'kf gp'v'h'gt'qh'ic'ij kxgp'kgo 0'
xqkf 'ij g'kgo \ T Ucv'g'k'ncv'r qu]34_ 'kpv'kgo K+''	Eqr kgu'ij g'ij T'ucv'g'qh'ic'ij kxgp'kgo 'kpv'c'ij kxgp'cttc' { " B r ctco 'r qu'C'r q'k'v'gt'v'q'cp'cttc' { 'qh'uk' g'34'y j lej 'y knidg' q'x'gty tkv'gp'd' { 'ij g'kgo 'ucv'g' B r ctco 'kgo K+'' 'ku'ij g'kgo 'y j qug'ucv'g'ku'd'g'kpi 'tgs w'ug'f "
dqqn'kgo k\ q'p'g'kpv'kgo K+''	Tgwtpu'ij j gv'ij g'ur gekh'gf 'kgo 'ku'r m'egf 'k'p' { qwt' } q'p'g'0' Tgwtpu'h'cnug'h'ij g'kgo 'ku'd'g'kpi 'ij g'f 'qt'ku'p'q'v'k'ij g'ij q'p'g'0'
kpv'ij cuKgo *kpv'kgo K+''	Vgmi'y j q'ij cu'c'ij kxgp'kgo 0' B r ctco 'kgo K+'' 'Vj g'kpv'ij gt'kf gp'v'h'gt'qh'ic'ij kxgp'kgo 0' 't'g'w'p'2''k'ij'p'q'p'g'ij cu'r lengf 'wr 'ij g'ur gekh'gf 'kgo . '3'k'ij' { qw' j cxg'r lengf 'wr 'kgo . 'qt'4'k'ij' { qw'qr r q'p'g'v'ij cu'r lengf 'wr 'ij g' kgo 0'
kpv'ij g'kgo V{r g'kpv'kgo K+''	Tgwtpu'ij j cv'ij g'kgo 'v{r g'ku'0' Rquidng'kgo 'V{r gu<' ""; ""KGO aV RGaNC TI G' ""; ""KGO aV RGaO GF KWO " ""; ""KGO aV RGaUO CNN" ""; ""KGO aV RGaURGE ICN" ""; ""KGO aV RGaCF CRVGT " "B r ctco 'kgo K+'' 'Vj g'kpv'ij gt'kf gp'v'h'gt'qh'ic'ij kxgp'kgo 0' "t'g'w'p'ij g'e'q'tt'g'ur q'f kpi 'kgo 'v{r g'v'ij g'ij kxgp'kf gp'v'h'gt'0'
xqkf 'f tqr URU*+''	F tqr u'URU'kgo u''
h'ncv'ij g'U'eqt g*+''	Tgwtpu'r n{ gt'au'ueqt g''
h'ncv'ij g'Q'ij gt'U'eqt g*+''	Tgwtpu'qr r q'p'g'v'au'ueqt g''
h'ncv'ij g'hw'gn' go cl'k'p'ij *+''	Tgwtpu't'go cl'k'p'ij 'hw'gn'
k'pv'ij g'ewt'g'p'w'lo g*+''	Tgwtpu'ij g'w'lo g'k'p'ij g'ij co g''
xqkf 'ug'p'f O guuci g'w'p'uki pgf 'ej ct'k'p' wO ui +''	U'g'p'f u'inputMsg v'q'ij g't'ucv'gn'k'g''
w'p'uki pgf 'ej ct't'ge'g'k'x'gO guuci g*+''	Tgwtpu'ij g'o quv't'ge'g'p'v'o guuci g'ug'p'v'd' { 'q'ij g't'ucv'gn'k'g''



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lpvfi gV wo URUJ grf *+ "	Tgwtpu'vj g'pwo dgt'qh'URUu'lnknlj grf 'd { 'y g'urj gte "
dqqrni gv\ ppg*hnvc\ ppgkphq]6_+ "	K'cmir u'j cxg'dggp'r rcegf . 'tgwtpu'twg'cpf 'lvtgu'c' ppg' guko cvkp'lp' ppgkphq]0Qvj gty kug'tgwtpu'hcng0Ecp'qpn\ 'dg' ecmgf 'qpeg'r gt'ugeqpf 0*fp'5F 'y g'uco g'xcnngu'ctg'tgwtpgf 'gcej " vko g'y g'hvpevkp'ku'ecmgf + "
dqqrnj cuKgo DggpRlengf Wr *lpv'kgo Kf + "	Tgwtpu'twg'h'kgo Kf 'j cu'dggp'r lengf 'wr 'cv'uo g'r qlp0Tgwtpu' hcng'qy gty kug0 r r "

30504 "Hwgnl'

Gcej 'r r { gt 'ku'cuuki pgf "c'xkt wcn'hwgnl'cmqecvkqp"qh'82'ugeqpf u.'y j lej 'ku'vj g'vqcn'luwo "qh'hwgnl'wugf 'kp" ugeqpf u'qh'lpf kxkf wcn'vj twugt 'hk'kpi 0Qpeg'vj g'cmqecvkqp'ku'equwo gf . 'y g'ucvgnksg'y knlpqv'dg'cdrg'vq" tgur qpf "vq'URJ GTGU'eqpvtqr'eqo o cpf u0K'y kn'ht'g'vj twugtu'qpn\ 'vq'cxqkf 'rgcxkpi 'y g'k'pvtcevkqp'\ ppg" qt'eqnkf kpi 'y kj 'y g'qy gt'ucvgnksg0Cp { 'cevkqp'vj cv'tgs vktgu'ht'kpi 'y g'vj twugtu'uwej 'cu'tqcvkpi . "

ceegrtevkpi "qt'o qxkpi "equwo gu'hwgnl'

Vcdrg"5<'Hwgnl'cmqecvkqp"

	2D	3D	Alliance
Hwgnl'cmqecvkqp"]u_ "	82u"	82u"	82u"

30505 "K'pvtg/ucvgnksg'Ego o wplecvkqpu"

Vj g'ucvgnksgu'j cxg'vj g'cdkx\ 'vq'eqo o wplecvg'y kj 'gcej 'qy gt'wukpi 'dkpct { "o guuci gu0Vj g'CRK'hvpevkqpu" ugpf O guuci g'cpf 'tgegkxgO guuci g'o c { 'dg'wugf 'vq'ugpf 'f cv' "dgvy ggp'vj g'ucvgnksgu0Vj g'dcpf y kf vj " cxk'cdrg'vq'vj g'ucvgnksgu'ku'cu'hqny u<*cf f kpi 'hvpevkp'ht'eqqr gtevkqp+ "

Vcdrg"6<'K'pvtg/ucvgnksg'eqo o wplecvkqpu'dcpf y kf vj "

	2D	3D	Alliance
O guuci g'uk' g"	Wpuki pgf "ej ct"	Wpuki pgf "ej ct"	Wpuki pgf "ej ct"

30506 "Eqf g'Uk' g"

C'URJ GTGU'ucvgnksg'ecp'h'k'c'hko kxkf 'co qwpv'qh'eqf g'lp'ku'o go qt { 0Gcej 'r tqlgv'j cu'c'ur gek'le'eqf g'uk' g" cmqecvkqp0'Y j gp" { qw'eqo r krg" { qwt'r tqlgv'y kj "c"eqf g'uk' g" guko cvg."y g'eqo r krgt "y kn'r tqxkf g'vj g" r gtegpvcu g'qh'vj g'eqf g'uk' g'cmqecvkqp'vj cv' { qwt'r tqlgv'ku'wukpi 0Hqto cn'eqo r gv'kqp'lwdo kuukqpu'tgs vktg" vj cv' { qwt'eqf g'uk' g'dg'322' "qt'rguu'qh'vj g'vqcn'cmqecvkqp0"

30507 "K'p'k'cn'Rqukkqp"

Vj g'Dnwg'Urj gtg'lvctw'cv'vj g'Z.' [.\ 'qh']20.'2087.'200_0Vj g'Tgf "Urj gtg'lvctw'cv'vj g'Z.' [.\ 'qh"]20./2087.'200_0"

Vj g'ucvgnksg'tcf ku'ku'2083o . 'dw'ucvgnksg'r qukkqp'tgr'v'xg'vq'i co g'hgcw'w'gu'ku'f gv'gto kpgf 'd { 'y g'v'qecvkqp" qh'vj g'egpvtg'qh'vj g'ucvgnksg0"



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Vcdng'7<"KpkkeriRqukkqpu"

	2D	3D	Alliance
Tgf "	"	"	"
Z"jo _"	20"	20"	20"
["jo _"	/207"	/207"	207"
\ jo _"	20"	20"	20"
Dnwg"	"	"	"
Z"jo _"	20"	20"	20"
["jo _"	207"	207"	207"
\ jo _"	20"	20"	20"

3058'Rrc { gt 'KF "

Wugt'u'y knkf gpvkh\ 'y go ugrxgu'cu'or rc { gtKF "? 3o'cpf 'qr r qpgpu'cu'or rc { gtKF "? 4o'hqt'cmf co gu.'y j gyj gt" qt'pqv'y g { 'ctg'y g'tgf 'URJ GTGU'qt'y g'dnwg'qpg'tgur gevkgf 0'

3059'P qkug'"

K'ku'lo r qtcpv'v'p'q'v'y cv'cnj qwi j 'y g'y q'eqo r gvkqtu'lp'c'o cvej 'y kn'cny c { u'dg'r gthqto kpi 'y g'uco g' ej cnjpi g'cpf 'j cxg'kf gpvkcrc'ucvgnksgu.'y g'y q'ucvgnksgu'o c { 'dg'chgevgf 'd { 'tcpf qo 'r gtwt'dcvkqpu'lp' f khtg'gpv'y c { u.'tguwnkpi 'lp'uo cm'qt'gxgp'rc'i g'xctk'v'kqpu'lp'ueqtg0Vj ku'ku'hwm' 'lp'v'p'f gf 'cu'r ctv'qh'y g' ej cnjpi g'cpf 'tghgevu'wpegt'v'k'v'k'lp'y g'ucvgnksg'f { pco le'cpf 'ugpuki 'o qf gu0Vj g'dgu'r gthqto kpi " uq'v'k'qpu'y kn'dg'y qug'y cv'r tqxg'v'q'dg't'q'duw'v'q'y gug'xctk'v'kqpu'cpf 'c'y kf g'xctk'v' 'qh'qdlgev'r ctco gyvtu0'

306'I co gr rc { "

Kp'qtf gt'v'q'dg'x'lev'qt'k'q'w'x'q'xgt'y g'qr r qukpi 'v'gco . 'gcej 'ucvgnksg'uj qwf 'r rceg'y gk'y tgg'URU'kgo u.'f qem' ucvgnksg'kgo u'v'q'r rceg'lp'y gk' qpgu.'cm'y j kg'o cpci kpi 'y gk'hwgn'y gk'v'ko g.'cpf 'y gk'ncv'k'q'p'q'p'y g' i co gr rc { 'ctgc0'

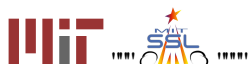
306B'Ucvgnksg'Rqukkqpkpi "U{ uvgo "

Vj gtg'ctg'5"URU'kgo u'j grf 'd { 'gcej 'URCEG/U'cv'y g'v'ctv'qh'cm'y g'i co gu0Vj g'URCEG/U'v'gco u'o wuw' r rceg'y go 'v'q'v'k'cpi w'v'g'y gk' qpgau'egp'v'gt0URU' qpg'ncv'k'pi 'y qtmu'qpn' 'chgt'cm'5"URU'j cxg'dggp" f gr n'j gf 'wukpi 'y g'x'q'kf 'f tqr URU'+hwpe'v'k'p0URU'ecrcw'v'g'c'tcf k'w'qh'gtt'q'p'x'gt'ugn' 'r tqr qt'v'k'p'rc'i'v'q'y g' ctgc'qh'y g'v'k'cpi w'ct'URU'kgo u'cpf 'f kur rc { u'y g' qpg'y kj 'y ku'tcf k'w'qh'gtt'q'0W'r qp'f tqr r kpi '{ qwt'k'p'rc'i' URU' { qw'y kn'it'geg'k'g'r q'k'p'w'gs w'rc'v'q'0B'f'gtt'q'tcf k'w'+0' "

Kp'y g'5F "cpf 'Cm'k'peg'i co gu'URU'kgo u'ecpp'v'dg'r rceg'f 'q'w'uk'f g'i co g'd'q'w'p'f ct'k'gu0'

Vcdng'8<"Cee'grt'v'k'pi 'T'cv'gu'y kj 'URU'kgo u"

No SPS	1 SPS	2 SPS	3 SPS
cee"	: l, cee"	, cee"	: B3, cee"



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3060'F qenkpi ""

F wtkpi 'yj g'4F "cpf '5F 'i co g.'vq'f qenly kj "cp'kgo "c'URCEG/U'o wuv'cr r tqcej "cp'kgo . 'pqv'dg'b' qxkpi " hcuvt' yj cp'023o lu.'dg'r qkp'kpi 'cv'yj g'kgo 'y kj "c'vqrgtcpeg'qh'2047'tcf kcpu'Vj g'cpi rg'dgy ggp'yj g' ucvgmkgu'hcelpi 'xgevqt'cpf 'yj g'xgevqt'dgy ggp'yj g'egpvt'qh'yj g'ucvgmkg'cpf 'yj g'egpvt'qh'cp' 'hceg'qh'yj g' kgo 'ku'y kj kp'2047'tcf kcpu+'. 'dg'y kj kp'c'ur gekhgf 'f kucpeg'qh'cp'kgo "cpf 'ecm'yj g'ã~ ~>Äã~ ^ < -∅ \ æ ↑ ÇD " hpevkqp'vq'f qen0'ã~ ~>Äã~ ^ < -∅ \ æ ↑ ÇD tgwt'pu't'wg'yj j gp'f qenkpi 'ku'uweeguuhw0'

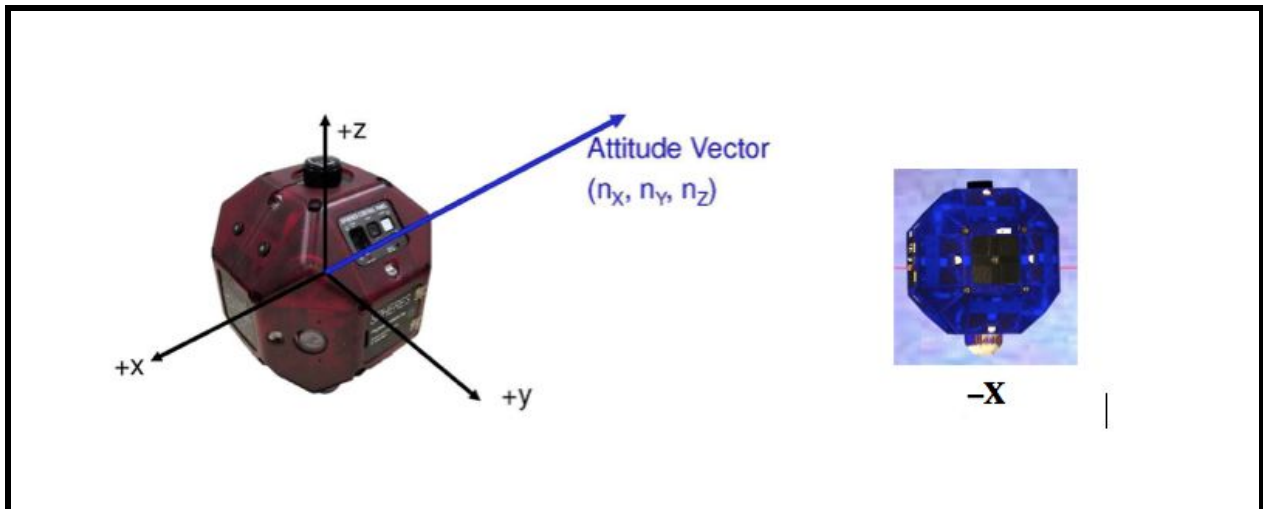
Cnkpeg'I co g<Cp'cf f kkpncitgs wtkgo gpv'kp'yj g'c'ncpeg'i co g'ku'yj cv'yj g'ucvgmkg'kgo u'ecp'dg'f qengf " hqo "qpg'ukf g'qpnf . 'hqo 'yj g'ör qkp'kpi 'hceg'qh'yj g'kgo 0'Vj ku'hceg'ku'o ctnmf 'y kj "c'f khtg'gp'v'eqmt' yj cp' yj g'tguv'qh'yj g'kgo 0'Vj g'URCEG/U'pggf u'vq'f qkp'v'qy ctf u'yj g'egpvt'qh'yj g'kgo ai'f qenkpi 'r qkp'kpi 'hceg' y kj "c'vqrgtcpeg'qh'2047'tcf kcpu'Vj g'cpi rg'dgy ggp'yj g'ucvgmkgu'hcelpi 'xgevqt'cpf 'yj g'kgo ai'hcelpi " xgevqt'ku'y kj kp'2047'tcf kcpu'0'

"URCEG/U'vgo u'pggf 'vq'ej genikh'yj gk'cvkwf gu'hceg'yj g'cvkwf gu'qh'kgo u0'Wug' "{ ~>Äã~ ^ < -∅ \ æ ↑ XPU \ á \ æ Çã ~>~ã \ Ä * ~bYFGYËÄ ↔ ^ \ Ä ↔ \ æ ↑ ∅ CED " hqt'kphqto cvkqp'cdqww'kgo "cvkwf g0' " Ñ ~ ~>Ä ↔ bÔá ^ < -∅ \ æ ↑ U ↔ äæÇ ↔ ^ \ Ä ↔ \ æ ↑ ∅ CED "tgwt'pu't'wg'kh'yj g'URCEG/U'ku'hcelpi 'yj g' eqttge'v'ukf g'qh'yj g'i kxgp'kgo 0'kgo Kf ai'ecp'dg'hqwpf 'kp'ugevkqp'3060+0"

K'ku'pqv'pgeguuct { 'vq'f qenly kj "c'F qenkpi 'Cf cr vgt'd { 'wukpi '&ã ↑ æËã~ ^ < -∅ \ æ ↑ ÇD qt' &ã ↑ æËã~ ^ < -∅ \ æ ↑ Ç ↔ ^ \ Ä ↔ \ æ ↑ ∅ CED 0F qenkpi 'Cf cr vgt'u'ctg'r lengf 'wr'd { 'r cuukpi 'yj tqwi j 'yj g'kgo 'cv' ur ggf ">2Bo lu0'Wug'yj g'hpevkqp' "{ ~>Äã~ ^ < -∅ \ æ ↑ XPU \ á \ æ Çã ~>~ã \ Ä * ~bYFGYËÄ ↔ ^ \ Ä ↔ \ æ ↑ ∅ CED Ä qtÄ { ~>Äã~ ^ < -∅ \ æ ↑ Q ~ ^ Çã ~>~ã \ Ä * ~bYËÿËÄ ↔ ^ \ Ä ↔ \ æ ↑ ∅ CEDÄ vq'i gv'yj g'cf cr vgt' hqecvkpu.'cpf 'wugÄ ä ~ ~>ÄããbNäã * \ æãÇDÄ vq'eqphkto 'r kenl'vr 0'

Vj g'URJ GTGU'f qem'y kj 'ku'pgi cvxg'z'*/z'+hceg0'

Hki wtg'6<URJ GTGU'r qkp'u'cpf 'f qem'y kj 'ku'z'hceg''



"

Kp'5F 'cpf 'Cnkpeg.'c'r gpcn'qh'205'r qkp'u'ku'lo r qugf 'qp'c'URCEG/U'yj cv'cwgo r w'vq'f qem'ecm'i' ä~ ^ < -∅ \ æ ↑ ÇD 'hpevkqp'+y j krg'pqv'hwtkkpi 'yj g'f qenkpi 'tgs wtkgo gpv'0T gcf 'o qtg'cdqww'r gpcnku'kp''

SPACE-SPHERES; Ua Y'A Ubi U"

ugevkqp"306070"

"

Vcdng'9<"Kgo "Rlemw' F kvcpegu"%o gvtu'ltqo "egpvt'qh'kgo +"

Item Type	2D	3D	Alliance
Small (including Special Item)	[.124 : .146]	[.124 : .146]	[.124 : .146]
Medium	[.138 : .160]	[.138 : .160]	[.138 : .160]
Large	[.151 : .173]	[.151 : .173]	[.151 : .173]

Hki wtg'6<F qemipi "Ucvgmkg"Kgo u"y kj "z.{ 'eqqt f kpcvgu'ht'cmkpeg'cf f gf +"

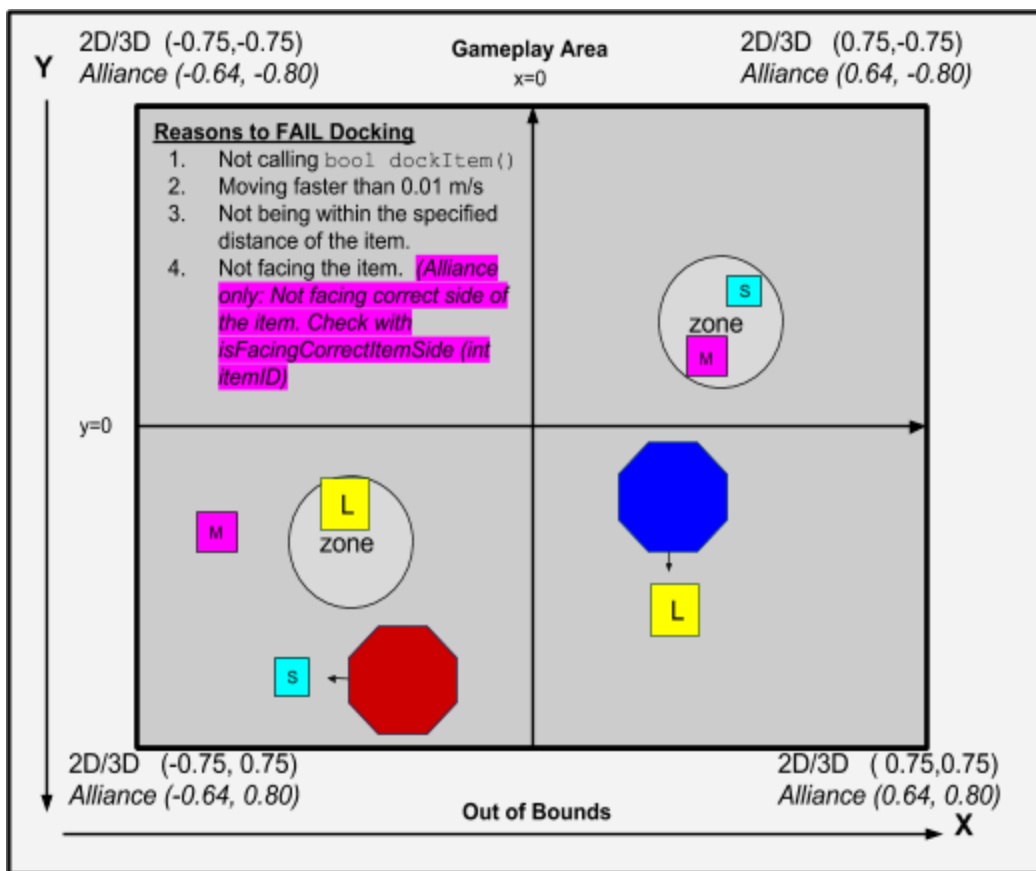


Diagram not to scale

30605"Kgo u"

30608"Kgo "V{r gu'cpf "Nqecvkpu"

Vj gtg'ctg'ukz "Ucvgmkg"kgo u"*qh'y tgg'uk gu+"uecwgtgf "ctqwpf "j'g'lpvgtcevkap| qpg0Gcej "j'cu'c'wpls wg"

SPACE-SPHERES; Ua Y'A Ubi U"

pwo gtle'kf gpwht'ltqo "2"q"P/3."y j gtg'P'ku'y g'pwo dgt'qh'kgo u0k'vj g'4F "cpf "5F "xgtukp"vj gtg'ctg'ukz" kgo u"qvcrn*2/7+0k'vj g'cmkpeg'i co g'y q'F qenki "Cf cr vtu'cpf "qpg'Ur gekri'kgo "ctg'cf f gf "q'i kxg"; " kgo u"qvcrn*2/: +cu'uj qy p'lp'Hi wtg'80"k'vj g'cmkpeg'i co g'dqv 'vj g'r qukkap'cpf "cwkxf g'qh'kgo u"2/7" ctg'tcpf qo n' "cuuki pgf 0"

Vcdrg': <"kgo "Kf u'cpf "Nqecvkqp"

Item Number	Item Type	2D Location (X, Y)	3D Location(X,Y,Z)	Alliance Location (X,Y,Z)
0	Large	(.23, .23)	(.23, .23, .23)	Randomly assigned
1	Large	(-.23, -.23)	(-.23, -.23, -.23)	Randomly assigned
2	Medium	(.36, -.36)	(.36, -.36, .36)	Randomly assigned
3	Medium	(-.36, .36)	(-.36, .36, -.36)	Randomly assigned
4	Small	(-.50, .50)	(-.50, .50, .50)	Randomly assigned
5	Small	(.50, -.50)	(.50, -.50, -.50)	Randomly assigned
6	Special Item	N/A	N/A	(0.0, 0.0, 0.0)
7	Docking Adapter	N/A	N/A	Initial location Randomly assigned
8	Docking Adapter	N/A	N/A	

30604'Rqkpv'Xcngul'Ceegrntcvkqp'k'ogt'vc'qh'y g'kgo u"

k'vj ku'i co g'ucvgnkg'kgo u'ctg'qh'xct {kpi "uk' gu'cpf "o cuugu0Vj g'rcti gt"qdlgew'j cxg'rcti gt"o cuu'cpf "ctg" y qtvj "o qtg'r qkpw'dw'bo cng'ceegrntcvkpi "urqy gt'hqt'y g'URJ GTG/UO

Vj g'ucvgnkg'kgo u'eqo g'y kj "vj tgg'uk' gu'qh'y j kej "vj gtg'ctg'y q"geej 0Vj g'Uo cm'kgo "j cu" "uk' g'cpf "o cuu' qh'URJ GTGU0K'i eqngv'f "lp'y g' qpg.'kvi kxgu'20r u'r gt'ugeqpf "cpf "k'h'c"URCEG/U'ectt'kgu'k'k'ecp" ceegrntcv'cv": I; 'tcvg0Vj g'O gf kwo "kgo "j cu" "uk' g'cpf "o cuu'qh'URJ GTGU0Y j gp'lp'y g' qpg'k'vi kxgu" 20r7'r u'r gt'ugeqpf "cpf "c"URCEG/U'y kj "vj g'o gf kwo "kgo "ecp"ceegrntcv'cv" 'tcvg0H'kpcmf "vj g'rcti g'kgo " j cu" "uk' g'cpf "o cuu'qh'URJ GTGU0K'i kxgu'20'r u'r gt'ugeqpf "cpf "o cngu'c"URCEG/U'ceegrntcv'cv": B3" tcvg0"

Vcdrg'; <Uk' g'cpf "O cuu'qh'kgo u'eqo r ctgf "q'c"URJ GTGU"

	2D	3D	Alliance
Neti g'Ucvgnkg'kgo "	51 "	51 "	51 "
O gf kwo "Ucvgnkg'kgo ""	316 "	316 "	316 "
Uo cm'Ucvgnkg'kgo "k'penf kpi "Ur gekri'kgo "	31 "	31 "	31 "
F qenki "Cf cr vt"	P 10 "	P 10 "	P 10 "

"

SPACE-SPHERES'; Ua Y'A Ubi U''

Vcdrg'32<"Ucvgmkg'Kgo 'F ko gpukpu"*Ngpi vj "qh'c'ukpi ng'nceg"? "4, 'tcf kwu+"

Item Type	Radius
Ncti g'Kgo 'Tcf kwu"	*20597h URI GTGaTCF KWU+?"2026347"
O gf kwo 'Kgo 'Tcf kwu"	*2047h URI GTGaTCF KWU+?"202497"
Uo cmi'Kgo 'Tcf kwu"	*20847h URI GTGaTCF KWU+?"2023597"

"

Vcdrg'33<Ceegrntcvkqp'Tcvgu'ht"URCEG/U'y kj 'f khtgtpv'Kgo u"

	2D	3D	Alliance
Ncti g'Ucvgmkg'Kgo "	: B3"	: B3"	: B3"
O gf kwo 'Ucvgmkg'Kgo ""	617"	617"	617"
Uo cmi'Ucvgmkg'Kgo 'kpenf lpi 'Ur gekri'Kgo +"	: l; "	: l; "	: l; "
F qemipi 'Cf cr vgt"	P IC"	P IC"	P IC"

"

kp'vj g'cmkpeg'i co g'vj g'ucvgmkg'kgo u'j cxg'kpgtvc0Kgo u'f tqr r gf 'htgo 'c'o qxkpi 'ur j gtg'cv"xgmekkgu" i tgcvt'vj cp'2023o lu'qt'eqnkf gf 'y kj 'cv"xgmekkgu'i tgcvt'vj cp'2023o lu'y knleqpvkpwg'o qxkpi 'cv'vj g'ur ggf " y kj 'y j lej 'vj g'f 'y gtg'tgrucgf 'qt'cv'vj g'ur ggf 'qh'vj g'eqnkukqp0K'vj g'f 'j k'vj g'i co g'dqwpf ct{ 'vj g'f 'tgrwtp" vq'vj gk'qtki kpcn'uvct'kpi 'r qukskqp0Kgo u'f tqr r gf 'kp'Cuugo dn' \ qpgu'ht'Ucvgmkg'Eqpuxwvskqp'y knlpqv" j cxg'kpgtvc0'

30605'Qvj gt 'Kgo 'F gvcku"

Ecni'vj g'i co g'hwpevkqp'kp'vj cu'kgo *kp'v'kgo akf '+v'f vgtto kpg'y j gvj gt'vj g'kgo 'ku'j grf 'd{ "pqdqf { *2+." { qw*3+."qt" { qw"qr r qpgpv*4+0'

Kp'5F 'cpf 'Cmkpeg. 'C'URCEG/U'y knidg'r gpcrk gf 'kh'k'eqnkf gu'y kj 'cp'kgo 'qt'y kj 'cpqvj gt "URCEG/U' Vj g'r gpcn'f 'y knidg'f vgtto kpgf 'd{ 'vj g'URCEG/U'u'o qo gpwo 'y j gp'k'eqnkf gu'y kj 'vj g'kgo 0*K'vj g' cmkpeg'r j cug'vj g'r gpcn'f 'ku'f vgtto kpgf 'd{ 'vj g'URCEG/U'u'igrv'kxg'b qo gpwo 'y kj 'vj g'kgo +'Vj ku" r gpcn'f 'cr r n'gu'gxgt { y j gtg'gzegr v'kpkf g'c'URCEG/U'vgo au'qy p'Cuugo dn' \ qpg'y j gtg'eqnkukqp'u'y kj " kgo u'y knlpqv'dg'r gpcrk gf 0'Ugg'ugevkqp'3060'ht'o qtg'kphqto cvkqp'cdqwr'r gpcnkgu0'

Vj g'f kci tco 'dgrny 'uj qy u'j qy 'vj g'kgo u'ctg'r rnegf 'u{o o g'v'k'ecm'f . 'cv'vj g'uco g'f kucpeg'htgo 'vj g' f kci qpcr0'

SPACE-SPHERES; Ua Y'A Ubi U''

Hki wtg'7<F kci qpcr!U{o o o gt{ '*y kj 'z.{ 'eqqtflpcvgu'ht'cmkpeg'cf f gf +'

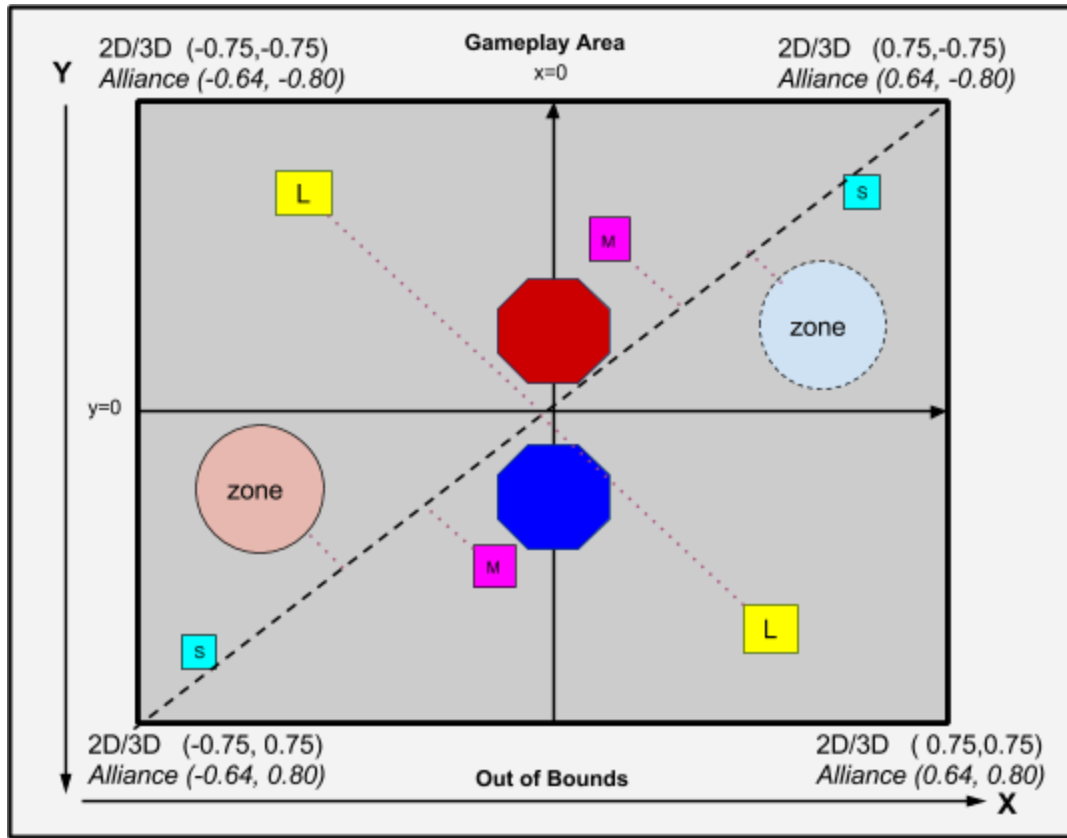


Diagram not to scale

SPACE-SPHERES; Ua Y'A Ubi U''

Hk wtg'8<F kci qpcriU{o o gv{ 'lp' Cmkpeg'I co g"

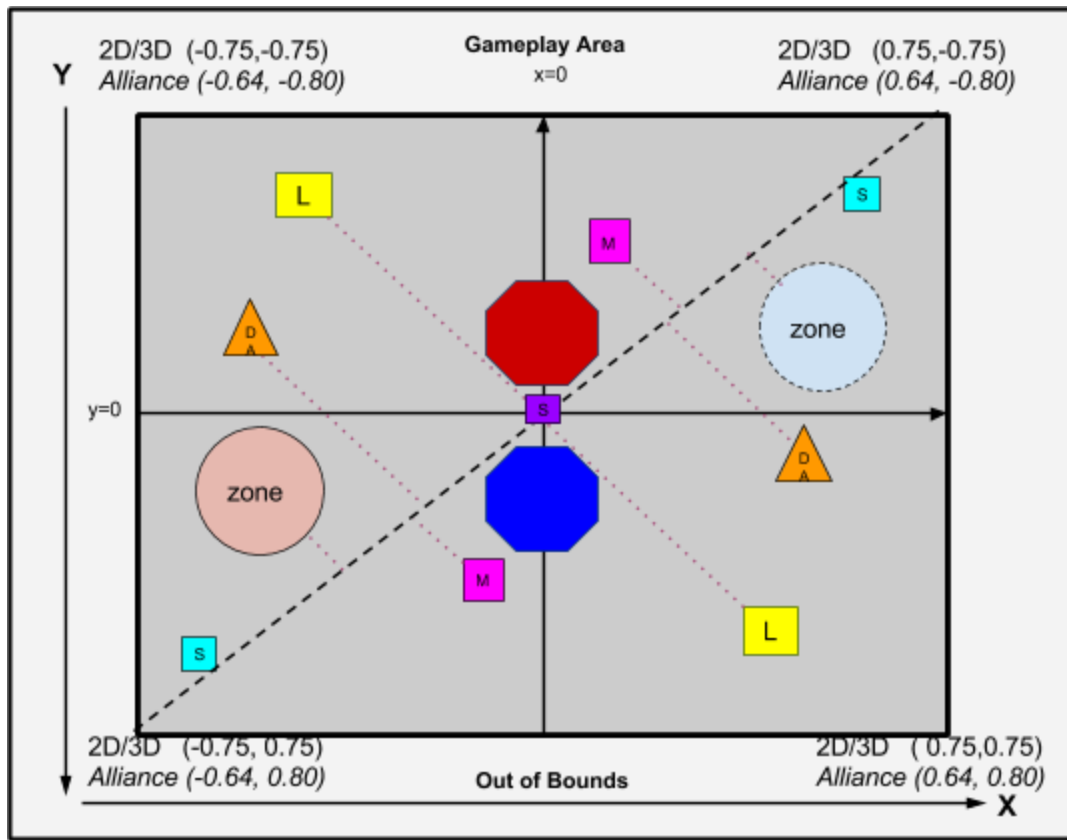


Diagram not to scale

3066"Ueqtkpi "Uwo o ct { ""

[qwt'ueqtg'ku'rcti gn{dcugf"qp'yj g'kgo u"{qwj'cxg'kp}{qwt'Cuugo dn{ \ qpg0kgo u'ctg'y qtvj 'f khtg'pvr qkp'v' xcnwgu'f gr gpf kpi "qp'yj gk'uk'gu0"

Vj g'ueqt kpi "ecrewe'kqp'ku'cu'hqmqy u<"

Vcdrg'34"<Rqkp'Xcnwgu'

	2D	3D	Alliance
Uo cm'kgo "kpenf kpi "Ur gekci' kgo +"jr vuhge_"	208"	208"	208"
O gf kwo "kgo "jr vuhge_"	2087"	2087"	2087"
Ncti g'kgo "jr vuhge_"	204"	204"	204"
F tqrr kpi "hpcniURU'kgo "	08 f'gttqt'tcf kwi'htqo "URU+"		
Ur gekci'kgo "Rlen'Wt " *qpg'wo g'dqpwu"	P IC"	P IC"	5"
F qemkpi "Cf cr vt"	P IC"	P IC"	N/A"

SPACE-SPHERES; Ua Y'A Ubi U''

3067'Rgpcnkgu"

[qwt'ueqtg'o c{ "cnuq'ej cpi g'f wg'vq'xctkqwu'r gpcnkgu'y cv'y kni'dg'gphqtegf "cu"{ qwr'rc { "y' g'i co g0"

Vj g'r gpcnkgu'y kni'dg'gphqtegf "cu'hqmqy u<

Vcdng'35<"Rgpcnkgu"

	2D	3D	Alliance
Fqemkpeqttgem{ "	P IC"	/206"	/206"
Eqnkukqpu'y kj 'kgo u, "	P IC"	*70'x"{ qwt'URI GTGU" o qo gpwo 0"	*70'x"{ qwt'URI GTGU" o qo gpwo 'tgrvxxg'vq" y' g'kgo 0"
Eqnkukqpu'y kj 'URI GTGU'*cv' xgrqeklgu'dgny "eqnkukqp" cxqkf cpeg'y' tguj qrf +"	P IC"	*70'x"{ qwt'URI GTGU" o qo gpwo 0"Vj g" eqnkukqp'r gpcn{ "ku" cr r rkgf "vq'dqy " URI GTGU"	*70'x"{ qwt'URI GTGU" o qo gpwo 0"Vj g" eqnkukqp'r gpcn{ "ku" cr r rkgf "vq'dqy " URI GTGU"
Tgo clpki "kp"qr r qpgpw' qpg"	P IC"	/206 luge"*chgt" ewo wrcvxxg'32'luge+"	/206 luge"*chgt" ewo wrcvxxg'32'luge+"

, Vj gtg'ku'pq'r gpcn{ "cr r rkgf 'hqt'eqnkukqpu'y kj 'kgo u'hqecvqf 'lpukf g'y' g'r rc { gtai'qy p'Cuigo dn{ \ qpg0"

3068'Gpf "qh'i co g"

Vj g'i co g'gpf u'chgt'3: 2'lugeqpf u0Y j kej gxgt'vgo "j cu'o qtg'r qlpw'y kpu0k'v' g'wprkngn{ 'ecug'qh'c'vkg."
y j qgxtg'ku'emqutg'vq'y' g'egpvt ltki kp'qh'y' g'r rc { lpi 'hgrf "cv'i co g'gpf 'y' kpu0'

40'Vqwtqpcu' gpv'"

C\ gtq'Tqdqv'leu'vqwtqpcu' gpv'eqpukuu'qh'ugxgtcn'r j cugu'ecmgf "eqo r gvkqpu0Vj g'hqmqy lpi 'vcdng'rkau'y' g"
ng{ "f gcf rkpgu'hqt' y' g'4238"vqwtqpcu' gpv'ugcuqp<

Vcdng'36<"Vqwtqpcu' gpv'Mg{ 'F cvgu'

Date (2016)	Event
Sept 10 (Sat)	Kick-off webcast
Sept 30 (Fri)	2D Simulation Competition Deadline (end of practice)
UPDATE Oct 30 (Sun)	3D Simulation Competition Deadline
Nov 5 (Sat)	Alliance Formation Event
Dec 2 (Fri)	Semifinal Simulation Competition Deadline
Dec 18 (Sun)	ISS Code Due
Jan 2017- Date TBD	ISS Final Competition

"

Vj g'tcpnkpi u'lp"gej "eqo r gvkqpu'ctg'f gvgto lpgf "d{ 'c'Ngcf gtdqctf . 'f guetkdgf "dgrny 0Vj g'4F "Uko wrcvxxg"

SPACE-SPHERES; Ua Y'A Ubi U''

Ego r gvkqp'ku'pq'vp'grko kpcvqp'tqwpf =cmo quw'gxt { qpg'y j q'uwdo ku'eqf g'y j lej 'cej kxgu'c'pqp| gtq" ueqtg'ci ckpuv'c'odrcpnö'r rnc { gt'hr rnc { gt'y kj 'pq'eqf g+'v'j g'4F "Uko wrcvqp'Ego r gvkqp'cf xcpegu'v'j g'5F " Ego r gvkqp0'

4B "Vj g'Ngcf gtdqctf "

4B8 "Kpvtqf wcvqp""

Vj g\ gtq'Tqdqkcu'Ngcf gtdqctf 'j cu'cf cr wgf "qxtg'y j g' gctu."cpf 'ku'pqy 'dcugf "qp'y j g'Y j qng'J kuxqt { " Tcvkpi *Y J T+u{ ugo 0Vj g'Y J T'err tqcej 'tcenu'tcvkpi u'y tqwi j qw'gcej 'r j cug'qh'y j g'eqo r gvkqp'kp" qtf gt 'v'q'tcpnr rnc { gtu'qp'j g'ngcf gtdqctf 0Tcvkpi 'ku'ecrcwrcv'f "dcugf "qp'y j g'r tqdcdkx'f "qh'f qwt 'vgco " dgcvki "cpqy gt'vgco 'f wtkpi 'c'o cvej *r tqdcdkx'f "qh'y kpu'cpf 'tuugu+0Ueqtgu'htqo 'kpf kxk wcn'o cvej gu'ctg" pqv'rcvqtf 'kp'v'j g'ecrcwrcvqp0Ugg'y j g'öErcwrcvki "Tcvkpi uö'ugevqp'dgnqy 'hqt 'f gvcku0'

Vj g'Ngcf gtdqctf 'ecrcwrcv'gu'tcvkpi u'f ckl' 'htqo 'y j g'dgi kppkpi 'qh'c'eqo r gvkqp'wpv'v'j g'uwdo kuukqp" f gcf rkp0Cm'o cvej gu'f wtkpi 'y j g'eqo r gvkqp'r g'kqf 'eqwp'v'qy ctf 'y j g'tcvkpi 'kp'y j g'eqo r gvkqp0C'v'j g" gpf 'qh'gcej 'eqo r gvkqp'r j cug.'y j g'hpcn'wrcv'f kpi u'qp'v'j g'Ngcf gtdqctf 'y knif gvto kpg'y j lej 'vgco u' cf xcpeg'v'j g'pgz'v'r j cug0'

4B8 "Rrc { kpi 'O cvej gu'"

Gcej 'f c{ .cv'43<7; <7; "WE. *gzegr v'qp'eqo r gvkqp'f gcf rkp'gu'y j gtg'r quw'f 'ko gu'cr r n' +f{ qwt "o quv' tgegpv'f 'uwdo kvgf 'eqf g'ku'eqmgevgf 'd'f 'cp'cwqo cvgf 'u{ ugo 'cpf 'r rnc { gf 'ci ckpuv'qy gt 'vgco u'uwdo kuukpu." cu'f guetkdgf 'kp'y j g'ugevqp'v'krgf 'öUcpcf ctf 'r rnc { ö'dgnqy 0Vj g'öUcpcf ctf 'Rrc { ö'e{ eng'ku'tgr gcvgf 'c'v'v'v'qh' h'xg*7+'ko gu'wukpi 'y j g'vgco 'r rncgo gpv'htqo 'y j g'r t'g'x'kw'e'f 'eng'cu'v'j g'uwctvki 'r qkpv'ht'v'j g'pgz'v'e{ eng0' Tguwmu'ctg'r quw'f 'qp'y j g'y gdukw'ch'gt'cni'h'xg*7+'e{ engu'j cxg'dggp'eqo r r'vgf 0Y j kpg'y j g'f ckl' " eqo r gvkqp'ku'qpi qkpi 'y j g'ngcf gtdqctf 'y knip'q'v'dg'x'kukdg'cpf 'en'ekpi 'qp'y j g'Ngcf gtdqctf 'y knit'gwtp'v'j g" o guuci g<öTguwmu'y knidg'r quw'f 'qpeg'v'j g'f ckl' 'ngcf gtdqctf 't'wp'ku'eqo r r'vgö00 wnk' r'öUcpcf ctf 'r rnc { ö" e{ engu'ctg'eqo r r'vgf 'hqt 'y j g'hqny kpi 't'gcu'p'u<3+Vq'ugw'g'qt 'eqpxgti g't'guwmu'f ckl' 0*Vj ku'g'puw'g'u'c" o qtg'ceew'cv'g't'gh'evqp'qh'tcpnr'ht'vgco u'gpv'wtkpi 'c'eqo r gvkqp'ngcf gtdqctf 'hqt 'y j g'htu'v'ko g0'4+Vq" r tqxk'g'o qtg'o cvej 'f cv'ht'vgco u'cv'v'j g'v'qr 'cpf 'dqwqo 'qh'v'j g'ngcf gtdqctf 'ukpeg'v'j g'ug'vgco u'r rnc { 'hgy gt" o cvej gu'qxgtcni0'

4B8 "Ucpcf ctf 'r rnc { "

'Cu'c'f g'hcw'f{ qw'y knir rnc { 'y j g'; 'vgco u'cdq'x'g'f{ qw'cpf 'y j g'; 'vgco u'dgnqy '{ qw'0K'v'j g'g'ctg'rguu'v'j cp"; " v'gco u'cdq'x'g'f{ qw'f{ qw'y knir rnc { 'cni'vgco u'cdq'x'g'f{ qw'r nu'v'j g'; 'dgnqy '{ qw'0K'v'j g'g'ctg'rguu'v'j cp"; 'vgco u' d'gnqy '{ qw'f{ qw'y knir rnc { 'cni'v'j g'vgco u'dgnqy '{ qw'cpf 'y j g'; 'vgco u'cdq'x'g'f{ qw'0V'gco u'ctg'tcpf qo n' " cuuki pgf 'cu'Dnw'g'qt'Tgf "URJ GTG'f wtkpi 'gcej 'o cvej 0'

4B8 "Kpkkcn'uwdo kuukqp'twrg"

'Y j gp'f{ qwt 'vgco 'htu'v'uwdo ku'eqf g'v'j g'eqo r gvkqp'f{ qw'y knir rnc { 'o cvej gu'ci ckpuv'v'j g'dq'wqo 's wct'v'gt" qh'v'j g'vgco u'crt'gcf { "qp'y j g'ngcf gtdqctf 0Qp'v'j g'htu'v'c'f { 'y j g'uwdo kuukpu.'y j g'ug'vgco u'y knir rnc { 'cu'r gt" öUcpcf ctf 'Rrc { ö0'



SPACE-SPHERES; Ua Y'A Ubi U''

4007'Ncuv'f c { 'qh'yj g'eqo r gvkqpp"

"Qp'yj g'ncuv'f c { 'qh'yj g'eqo r gvkqpp. 'yj g'ngcf gtdqctf 'y knldg'twp'o wmk rg'ko gu'v'eqpxgti gl'ucdkk' g'yj g' tguwu'<'q'ecrewr'v'g'pvt { 'r qukkqpp'qh'yj gco u'uwdo k'kpi 'hqt'yj g'hktuv'ko g'cpf 'v'cuuguu'hkpcnr' r'ego gpv'qh' cm'v'gco u'0

4008'Ecrcwrc'kpi 'Tc'kpi u"

C'v'gco au'ucpf kpi 'kp'c'eqo r gvkqpp'ku'f g'v'gto k'p'g'f 'd { 'c'xcnw'g'ecm'g'f 'tc'kpi 0'Vj g'Ngcf gtdqctf 't'cenu'cm' o c'vej gu'c'v'gco 'j cu'r'nc { g'f 'ci c'kpu'v'q'v'j g't'r'nc { g'tu'lp'yj g'eqwtug'qh'yj g'eqo r gvkqpp'cpf 'et'g'c'v'g'c' 'tc'kpi " dcugf 'qp'yj g'qweqo gu'0

[qwt'tc'kpi 'ku'yj g'h'evqt'T2'lp'yj g'gs'w'v'k'qpp'hqt'yj g'r'q'd'c'd'k'k'v'f 'qh' { qwt'v'gco 'd'g'c'v'k'pi 'c'p'q'v'j g't'r'c { g't'qh' tc'kpi 'T3'lp'c'ukpi ng'o c'vej 0'

$$\text{Probability}(W) = e^{R_0} / (e^{R_0} + e^{R_1})"$$

Vj g'xct'k'cd'ng'T2'ku'eqo r w'g'f 'w'ukpi 'cp'c'ni q't'k'j o 'dcugf 'qp'Dc { gu'k'p'k'p'ht'g'peg'0'Vj g'r'q'd'c'd'k'k'v'f 'qh'c't'c'p'm'it' i k'x'g'p'c'ug't'k'gu'q'h'i co g'qweqo gu'I 'ku'yj gp<"

$$P(r|G) = P(G|r)P(r) / P(G)"$$

ku'yj g'r't'k'q't'f'k'w't'k'd'w'k'qpp'qh't'c'k'pi u.'y j k'ej 'ku'cu'wo g'f 'v'x'ct { 'kp'c't'c'p'f'q'o 'y c'm'lr't'q'egu'u'y k'j 'c'uc'p'f'c't'f' f'g'x'c'v'k'qpp'q'x'g't'g'cej 'f'c { 'qh'yj g'eqo r gvkqpp'qh'2'0B.'ej q'ug'p'c'h'g't'v'g'v'k'pi 'hqt'uc'd'k'k'v'f 'qh'yj g'd'q'c't'f'0'Vj ku' c'm'q'y u'c'm'lr't'g'x'k'q'w'u't'c'k'pi u'v'q'ej c'p'i g.'cu'ko r'ng'f 'd { 'y j g'p'co g'Y j q'ng'J ku'q't { 'T'c'k'pi 0'k'p'q't'k'pi 'R'x'f '+' d'g'ec'w'ug'k'ku'c'p'q'to c'r'k' k'pi 'eq'p'uc'p'v'y k'j 'p'q'g'h'g'ev'qh'yj g'h'k'p'c'nr't'c'k'pi 't.'c'p'f 'l'p'eq't'r'q't'c'v'k'pi 'y j g'uc'p'f'c't'f' f'g'x'c'v'k'qpp'qh't'c'k'pi u.'j c'x'k'pi 'g'cej 'f'c { 'qh'yj g'eqo r gvkqpp't'g'r't'g'ug'p'v'k'pi 'm"

$$\prod P(r|G) = P(g_k|r_k)P(r_k|r_{k-1})"$$

Vj g'h'k'p'c'nr'v'g'to 'R'x'f'2+'ku'ug'v'v'q'20"

Vj g'c'ni q't'k'j o 'w'ug'u'p'gy v'p'au'o g'y q'f 'v'q'o c'z'k'o k' g'yj ku'r'q'd'c'd'k'k'v'f 'cu'c'h'w'p'ev'k'qpp'qh' { qwt'tc'k'pi 0'Vj g't'c'v'k'pi " c'v'y ku'o c'z'k'o w'o 'ku' { qwt'p'gy 'tc'k'pi 0'

4009'Uwo o ct { ""

P'q'v'c'm'ly k'pu'c't'g'g's'w'c'r'0'Y k'pu'c'p'f 'm'qu'gu'c't'g'x'c'w'ng'f 'd { 'y j g'k't'g'nc'v'k'qpp'v'q'yj g'r'q'l'g'ev'g'f 'y k'p'r'q'd'c'd'k'k'v'f 0' qwt' tc'k'pi 'eq't't'g'ur'q'p'f' u'v'q'c'72" 'y k'p'r'q'd'c'd'k'k'v'f ".o g'c'p'k'pi " { qwt'c'g'o q't'g'yj c'p" 72'h'k'ng'n' 'v'q'y k'p'c'i c'k'pu'v'g'co u' y k'j 'm'q'y g't'tc'k'pi u'yj c'p' { qwtu.'d'w'p'q'v'c'i c'k'pu'v'g'co u'y k'j "j k'j g't'ue'q't'g'u'0'w'p'g'z'r'g'ev'g'f 'o c'vej 't'g'u'w'u.'g'k'yj g't' h'x'q't'c'd'ng'q't'w'p'h'x'q't'c'd'ng.'y k'n'lg'c'x'g'yj g'o q'u'v'p'q'v'g'c'd'ng'ko r c'ev'u'q'p' { qwt'tc'k'pi 0'

C'm'j q'w'i j 'y ku'r'q'egu'u'ku'd'c'ug'f 'qp'r'q'd'c'd'k'k'v'f . 'k'ku'yj j q'm' { t'g'r'k'cd'ng'0'Vj g't'c'p'm'le'q'o r w'ev'k'qpp'c'ni q't'k'j o " eq't't'g'ev'u'g't't'q'tu'k'p't'c'p'n'lj ku'q't { 'y j q'w'i j q'w'v'yj g'eqo r gvkqpp.'c'p'f "q'r'v'ko k' c'v'k'qpp'c'p'f 'uc'd'k'k'v'f c'v'k'qpp'uch'g'i w'c't'f' u' j c'x'g'd'g'g'p'c'f'f'g'f 'v'q'ec'rc'w'r'v'g't'c'p'm'ly k'j "g'z'v't'g'o g'r't'g'ek'uk'qpp'0'c'nu'q.'y j g'ng'cf gtdqctf 'ku'f'g'uk'i p'g'f 'v'q'c'm'q'y 'f'c'v'c' v'q'r't'q'r'c'i c'v'g'yj q'w'i j q'w'v'yj g'u'f'v'g'o 0'k'v'y q'r'nc { g'tu'f'q'p'w't'wp'c'i c'k'pu'v'g'cej 'q'v'j g't'd'g'ec'w'ug'yj g't'c'p'm' f'k'h'g't'g'peg'ku'o q't'g'yj c'p'32'um'q'u.'q'x'g't'nr'r'k'pi 'o c'vej gu'w'f'c'v'g'd'q'y 'v'g'co u'0'tc'k'pi u'0'G'x'g't { 'v'g'co au'tc'k'pi 'ku' t'g'r'v'k'x'g'v'q'c'm'lv'q'yj g't'tc'k'pi u'0'

Vq'u'wo o c't'k' g'yj g't'g'c't'g'ug'x'g't'c'nr'h'ev'q'tu'yj c'v'c'h'g'ev'c'v'g'co au'tc'k'pi <'d'0 c'vej 'Q'w'eqo gu'c'v'g'co 'yj c'v' eq'p'uk'v'g'p'v'f 'y k'pu'o c'vej gu'y k'n'w'w'c'm' { 'j c'x'g'c'j k'j g't'tc'k'pi 0'



SPACE-SPHERES; Ua Y'A Ubi U''

dQr r qpgpvTcpniY kppkpi "ci ckpuv'c"j ki j gt'tcpngf "vgco 'y kni'wuwmf 'ko r tqxg" c'vgco au'tcvkpi 0'

dQvj gt'O cvej 'Qweqo gu'Vj g'Ngcf gtdqctf "cngul'kvq'beeqwp'vcmib cvej gu'r r{ gf 'd{ 'cm'vgco u0Gxgp'kh'y q" vgo u'f q'pqv'j cxg'c'f k'gevg'pewpvg. 'vj gk'o cvej 'qweqo gu'y kni'j cxg'cp'gh'ge'v'cu'vj g' 'h'ngt' 'vj tqwi j 'vj kf" r ct'vku0'

Vj g'vgco 'y kj 'vj g'j ki j guv'tcvkpi 'y kni'dg'tcpni3'qp'vj g'ngcf gtdqctf 0'Vj g'dguv'y c{ 'vq'uvcdkkl' g'cpf 'gxgp" ko r tqxg'f{ qwt'tcpniku'vj g'o quv'iqi kecnly c{ <nggr 'y qtnkpi 'cv'f{ qwt'cni qtkj o u0'Vj gtg'ctg'pq'uw'gh'k'g" cngt'pckxgu0Cnuq. 'f qpø'hgv'hgct'qh'c'dcf "o cvej 'twkplkpi "f{ qwt'vgco au'r tqur geu'hnggr "f{ qw'ht'qo 'uwo kvlkpi " gctn'0Gxgp'vj qwi j 'gxgt{ 'uwo kuukap'ku'hcevtgf 'kvq'f{ qwt'o cvej 'j kvqt{ . 't'guwmu'qh'r cuv'eqo r gvklkpu" f go qpustcv'vj cv'vgco u'vj cv'o cng'o cp{ 'uwo kuukapu'vgpf 'vq'r gthqto 'd'gwgt0'

Hkpcmf . 'k'ku'ko r qt'vcpv'vq'pqvg'vj cv'chgt 'gxgt{ 'eqo r gvklkpu'r j cug. *4F . 5F . 'Cnkcepeg'r j cug+'cm'tcpnikpi " f cv'ku't'gh'g'uj gf 'cpf 'vgco u'uctv'ht'qo 'u'et'cej 0'

404'4F "Rtceveg'Uko wrcvq'Eqo r gvklkpu"

Cm'vgco u'vj cv'eqo r ngv'c'xcnkf 'tgi kvctvq'p'ctg'gri kdr'vq'r ct'vlekr cvg'lp'vj g'4F 'r tceveg'uko wrcvq' eqo r gvklkpu0'

P qvg<Uxgtcni'kvgt'pckvpcn'vgco u'ht'qo 'pqp/KU'pckvpu'o c{ 'r ct'vlekr cvg'lp'vj g'4F 'cpf '5F 'r j cugu'qh'vj g" vqwt'pco gpv'j qy gxgt. 'vj g'f 'y kni'pqv'eqp'v'p'wg'lp'vq'vj g'c'nkcepeg'r j cug0'Vj g'ug'vgco u'y kni'r ct'vlekr cvg'd{ " kvxkcvq'p'qn'0'

405'5F "Uko wrcvq'Eqo r gvklkpu"

Cm'WUC. 'T'wauk'p. 'cpf 'C'wut'c'rk'p'vgco u'vj cv'eqo r ngv'c'xcnkf 'tgi kvctvq'p'cpf 'uwo kv'eqf g'vj cv'cej kvxgu'c" pqp' g'q'ueqt'g'y j gp'eqo r gv'gf 'ci ckpuv'c'õd'ic'p'nr r{ gt'õ'*c'r r{ gt'y kj 'pq'eqf g'+d{ 'vj g'4F 'r tceveg" eqo r gvklkpu'f gcf r'kg'ctg'gri kdr'vq'r ct'vlekr cvg'lp'vj g'5F 'uko wrcvq'p'eqo r gvklkpu0'J qy gxgt. 'qpn' 'vj g'47" j ki j guv'ueqtkpi 'vgco u'ht'qo 'gcej 'GUC"o go dgt'uv'v'g'y kni'eqp'v'p'wg'lp'vq'vj g'5F 'r j cug0'

Y j gp'vj g'5F 'eqo r gvklkpu'uctv'vj g'i co g'y kni'dg'w'f'cv'g'f 'y kj 'p'gy 'ej cngpi gu'cpf 'vj g'eqtt'gur qpf kpi " VDC'xcn'gu'y kni'dg'c'ppq'w'pegf 0'

406'Cnkcepeg'Hqto cvkq'Gxgpv'

Vj g'vqr 't'cpngf " : 6'vgco u'qp'vj g'ngcf gtdqctf 'cv'vj g'gp'f 'qh'5F 'uko wrcvq'p'r r{ 'y kni'hqto "4: 'c'nkcepegu'qh' 'vj tgg'*5+'vgco u'gcej 0'Vj g'4: 'c'nkcepegu'y kni'y qtn'leqqr g'c'v'x'gn' 'vq'eqo r ngv'vj g'ugo kv'pcni'cpf . 'kh'pqv" g'no k'p'cv'gf . 'vj g'h'pcni0'Vgco u't'cpngf 'd'gn'y 't'cpni: 6'y kni'dg'lp'x'kgf 'vq'r ct'vlekr cvg'lp'vj g'X'kt'w'cn'H'k'pcni0'Ugg" Uge'v'k'p'40 'h'q'f'g'v'k'ni'cd'q'w'vj g'X'kt'w'cn'H'k'pcni0'

Vj g't'cpnikpi 'qh'vj g'vgco u'y kni'dg'f'gv'to k'p'gf 'd{ 'vj g't'cpnikpi u'cv'vj g'em'ug'qh'vj g'5F 'ngcf gtdqctf 0'

Chgt 'vj g'5F 'ngcf gtdqctf 't'cpnikpi u'ct'g'c'ppq'w'pegf . 'cf x'c'p'ekpi 'vgco u'y kni'j cxg'vj tgg'f'c{ u'vq'eqp'v'c'v'gcej " q'vj gt'vq'f'k'ue'w'u'vj g'kt'c'nk'ce'peg'r t'g'ht'g'p'egu0C'p{ 'vgco u'vj cv'f'q'p'qv'y kvj 'vq'eqp'v'p'wg'lp'vj g'V'q'wt'p'co gpv'y kni' j cxg'vj g'qr r qt'w'p'k'f{ 'vq'eg'f'g'vj g'kt' r'qu'k'k'p'v'q'vj g'p'gz'v't'cpngf 'vgco 0'

Vj g'Cnkcepeg'Hqto cvkq'Gxgpv'y kni'c'ng'r r'ceg'qp'P q'x'go dgt'7'vj 0'Vj g'c'nk'ce'peg'h'qto cvkq'g'x'gp'v'qt'õ'f' t'chv'



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f c{ o'ku'cp'qprkpg'gxgpvf wtkpi 'y j lej 'vgco u'y knlhqmy 'y g'cmkpeg'ugrgevkp'r tqegu'f guetkdgf 'dgmj 'vq' kpxkg'qj gt 'vgco u'lpvq'cmkpeg'cpf qt 'ceegr v'y gkt'r meg'y kj lp'cp'cmkpegOC v'rgcu'qpg'tgr t gugpvc'xg' Itqo 'gcej 'vgco 'o wuv'r ctv'ekr cvg'lp'y g'qprkpg'of tch'f c{ o'gxgpv'ht 'y g'vgco 'vq'eqp'v'pwg'vq'y g'cmkpeg' r j cugOC f f kkpncif gv'knu'cdqw'y g'qprkpg'of tch'f c{ o'cpf 'j qy 'vq'r ctv'ekr cvg'y kn'dg'r tqxkf gf 'lp'cf xcepg' qh'y g'gxgpv'

F wg'vq'y g'rti g'pwo dgt'qh'vgco u'kpxqmgf . 'y g'f tch'y kn'dg'ur rkv'lpvq'y q'r ctv'cu'uj qy p'lp'y g'dgmj " hki wtgOC m'vgco u'tcpngf 'y kj 'qf f 'pwo dgtu'y kn'r ctv'ekr cvg'lp'F tch'r ctv'3'cpf 'cm'vgco u'tcpngf 'y kj 'gxgp' pwo dgtu'y kn'r ctv'ekr cvg'lp'F tch'r ctv'40Gcej 'f tch'y kn'kpenw'g'64'vgco uO'

Hki wtg'9<F kxkukp'qh'Vgco u'ht 'y g'F tch'u'

Draft part 1 teams with odd numbered rankings			Draft part 2 teams with even numbered rankings		
1	29	57	2	30	58
3	31	59	4	32	60
5	33	61	6	34	62
7	35	63	8	36	64
9	37	65	10	38	66
11	39	67	12	40	68
13	41	69	14	42	70
15	43	71	16	44	72
17	45	73	18	46	74
19	47	75	20	48	76
21	49	77	22	50	78
23	51	79	24	52	80
25	53	81	26	54	82
27	55	83	28	56	84

Note: The times of the draft parts are To Be Announced

Vj g'cmkpeg'ugrgevkp'r tqegu'y knlhqmy 'c'ugtr gpv'pg'r cvgt p'knwutcvf 'lp'y g'Hki wtg'dgmj +< d'Vj g'j ki j guv'tcpngf 'vgco 'ugrgeu'y gkt'r ctv'pgt'htqo 'cp{ 'gzegr v'y g'vqr '8'tcpngf 'vgco u'lp'y gkt'f tch'o' d'Vj g'pgz'v'j ki j guv'tcpngf 'vgco 'ugrgeu'y gkt'r ctv'pgt'htqo 'cp{ 'qh'y g'tgo cl'kpi 'vgco u'gzegr v'y g'vqr '8' tcpngf 'vgco u'lp'y gkt'f tch'v' d'36'r cktu'ctg'etgcvf 'lp'y ku'o c'ppgt' d'C'dtgcni'cngu'r meg'ht 'y g'pgy 'r cktu'v'q'f k'uewu'y gkt'ugrgevkp'ht 'y g'5tf 'cmkpeg'vgco " d'Vj g'o'ny guw'tcpngf 'r ckt 'y gp'ugrgeu'y gkt'5tf 'vgco 'htqo 'y g'tgo cl'kpi '36'vgco u" d'Vj g'o4pf 'h'y guw'tcpnr ckt'o cng'y g'pgz'v'ugrgevkp' d'Eqp'v'pwg'v'p'kni'cm'36'cmkpegu'ctg'htqo gf O' d'Vj ku'r tqegu'ku'f wr rkecvf 'lp'dqy 'f tch'v'gxgpw'v'q'gpf 'y kj 'c'v'q'cn'qh'4: 'cmkpegu'

Rule: No more than 2 of the teams in an alliance can be from the same continent.

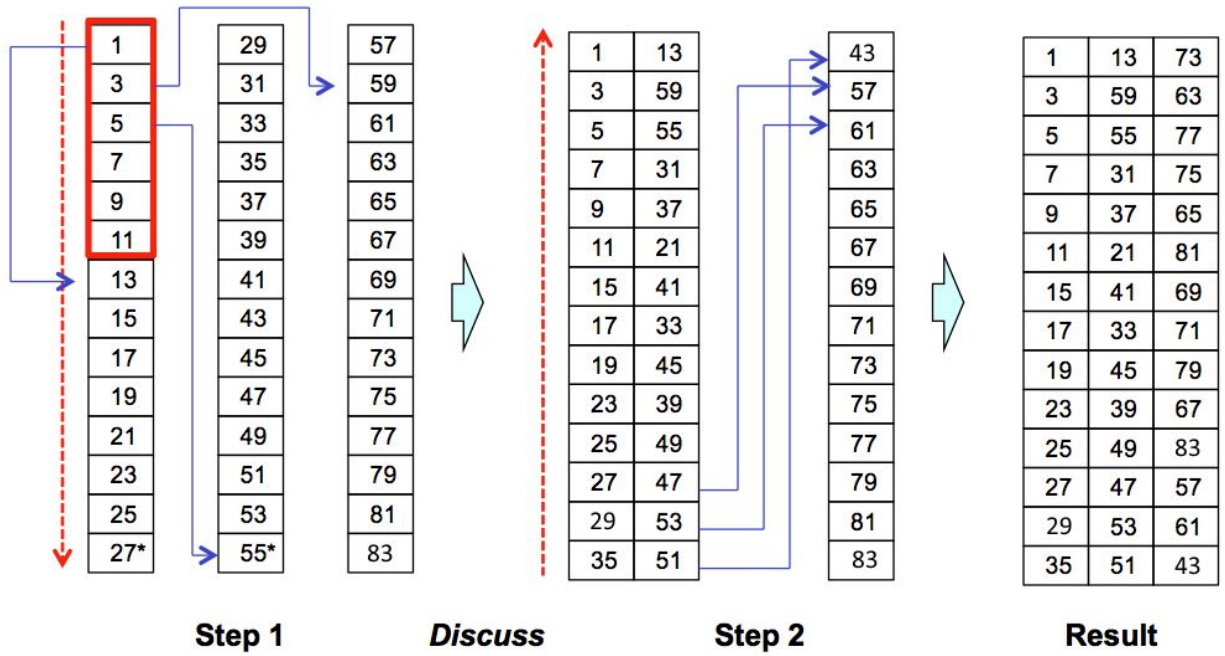
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SPACE-SPHERES; Ua Y'A Ubi U''

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Hki wtg': <Cmncpeg'Etgcvkqp'Rtqeguuf go qputcvgf 'hqt'vgco u'y kj 'qf f'pwo dgt'tcpnkpi u'



*; Vj g'gzco r ng'uj qy p'cdqxcg'ku'err tqzko cvg0'

40 Y kf 'Ectf u'Gzr nckpgf /'T gugt xgf "

*Vj ku'ugevkqp'ku'P IC'hqt'yj g\ gtq'Tqdqkcu'J ki j 'Uej qqn'Vqwt pco gpv'4238+

48 Ugo klpn'Uko wrvkqp'Eqo r gvkqp"

Vj g'4: "cmncpegu'etgcvgf 'f wtkpi 'yj g'Cmncpeg'Hqto cvkqp'Gxgpv'y knlr ctvkr cvg'lp'yj g'ugo klpn'uko wrvkqp' eqo r gvkqp0'

Y j gp'yj g'ugo klpn'eqo r gvkqp'lwctu.'yj g'i co g'y kn'dg'wr f cvgf 'y kj 'pgy 'ej cmgpi gu'cpf 'yj g' eqttgur qpf kpi 'VDC'xcn'ngu'y kn'dg'cppqwpegf 0'Vj gug'pgy 'ej cmgpi gu'ctg'kpvgpf gf 'vq'dg'uwducp'kcn' gpqwi j 'vq'tgs wkg'r ctvkr cvkqp'qh'cm'cmncpeg'vgco u'lp'r tgr ct kpi 'eqo r gvkqp'uwo kukpu0'

40"KU"Hkpcn'Ego r gvkqap"

Vj g"vqr "36"cmkpegu"qp"vj g"rgcf gtdqctf "cv"vj g"gpf "qh"ugo kkpncr r { "y kn'cf xcpeg"vq"vj g"KU"Hkpcn" Ego r gvkqap0Cmkpegu'tcpngf "dgnry "tcpm136"y knidg'lpkxgkf "vq"r ctvkr cvg'lp"vj g"XktwcnHkpcn0Ugg" Ugevqap40 "hqt"fgvckm'cdqw"vj g"XktwcnHkpcn0"

Vj g"KU"Hkpcn"y kn'vcng'r rneg'cdqctf "vj g"kpvtpcvkqpcn'Ur ceg"Uvcvqap"y kj "rkg"t'cpuo kuukqap"vq"O K/0" Vgco u'y kn'idg'lpkxgkf "vq"rkg"dtqcf ecuv'gxgpw"cv'O K" *WU+."cp"GUC"rqecvqap" *GW+."cpf "cv'Wpkxgtukf { "qh" U{ f pgf { *Cwutcrk-0"

40B"Qxgtxkgy "cpf "Qdlgevkgu"

Twppkpi "c"rkg"ego r gvkqap"y kj "tqdqu'lp"ur ceg'r t'gugpw"pwo dgt"qh'tgcn'y qtrf "ej cmgpi gu"vj cv'rcvqt" kpq"vj g"twgu"qh"vj g"ego r gvkqap0Co qpi "o cp { "kgo u. "vj g"ucvgnksgu"vug'dcvgt { "r cemi'cpf "EQ"4"vcpm"vj cv" ecp'dg'gzj cwvvgf "lp"vj g"o kf f ng"qh"o" cvej . "cpf "vj g"ego r gvkqap"o wu'hk'lp"vj g"cmqecvqf "vko g0Vj ku'ugevqap" guvcdriuj gu'ugxgtcni wkf grkpgu"vj g" gtq"Tdqdq'vku'vgo "kpvgpf u'vq'hqmqy "f wtkpi "vj g"ego r gvkqap0Mggr "lp" o kpf "vj cv'cu'lp"cp { "tghgtggf "ego r gvkqap. "cf f kkpncn'tgcn'vko g"lwf i o gpw"o c { "dg'tgs wkt gf 0Rrgcug'tgur gev' vj gug'f gekukpu'cpf "eqpukf gt"vj go "hpcr0"

Cdqxg"cm"vj g'hkpcn'ego r gvkqap"ku"o"t go qputcvkqap"qh'cm"vj g'j ctf "y qtn'vgo u"j cxg'r whqty ctf "vq"o cng'kv" vq"vj g"KU0Vj g\ T"uchhu'j ki j guvr tkqtkv "y kn'idg"o cmkpi "uwtg'gxgt { "cmkpeg"j cu"o"ej cpeg"vq"twp"qp"vj g" ucvgnksgu0K'ku'cnuq"gzr gevqf "vj cv'vj g"ego r gvkqap"y kn'j cxg'ugxgtcni\$Nquu"qh'Uki pcrf" *NQU+r gtkqf u'y j gtg" vj g"rkg'hggf "y kn'idg'wpcxckrdng0Y g'y kn'c'wgo r "vq"o cng"uwtg'cm'vgo u'i gv'vq'ugg"o cvej "qh"vj gkt " r r { gt. "dw'hpkij kpi "vj g"ego r gvkqap"y kn'vcng'r tkqtkv { 0"

Vq"uwo o ctq g. "vko g'r tkqtkv "y kn'idg"cmqecvqf "vq"<

3+Twppkpi "cm'uwdo kuukqpu'cdqctf "vj g"KU"cv'rgcuv'qpeg"

4+Ego r rvgkpi "vj g"vqwtpcp gpv'dtcengv"

5+Twppkpi "cm'uwdo kuukqpu" f wtkpi "rkg"xkf gq"

Y g'j qr g"vq"ego r rvg'vj g"vqwtpcp gpv'wukpi "qpn" t'guwmu'htqo "o cvej gu'twp"cdqctf "vj g"KU."dw'ukwcvkqpu" o c { "ctkug"vj cv'y kn'htqteg"wu"vq'tgnf "qp"qj gt"o gcuwtgu'uwej "cu'uko wvvgf "o cvej gu0"

40G"Ego r gvkqap"Hqto cv"

Vj g"cmkpegu"y kn'idg'f kxkf gf "kpq"4"eqphgtgpegu'hqt"vj g"KU"ego r gvkqap0Cm'vgo u'tcpngf "y kj "qf f" pwo dgtu'y kn'rtvkr cvg'lp"Eqphgtgpeg"C="cm'vgo u'tcpngf "y kj "gxgp"pwo dgtu'y kn'rtvkr cvg'lp" Eqphgtgpeg"D."cu'uj qy p'lp"vj ku'hki wtg0"

Hki wtg"; <F kxkqap"qh"Vgco u'dgy ggp"Eqphgtgpegu"

Conference A Alliance ranks	Conference B Alliance ranks
1,3,5,7,9,11,13	2,4,6,8,10,12,14

Gcej "eqphgtgpeg"y kn'kpenxf g"ppg'od { go"vgo "cmkpegu'tcpngf "%0"cpf "%4"cwqo cvkcm { "cf xcpeg"vq"vj g" eqphgtgpeg"ugo kkpncn+cpf "4"dtcengv"qh"5"cmkpegu"gej 0Gcej "dtcengv"y kn'rt { "5"o cvej gu'lp"tqwpf /tqdkp"

SPACE-SPHERES; Ua Y'A Ubi U''

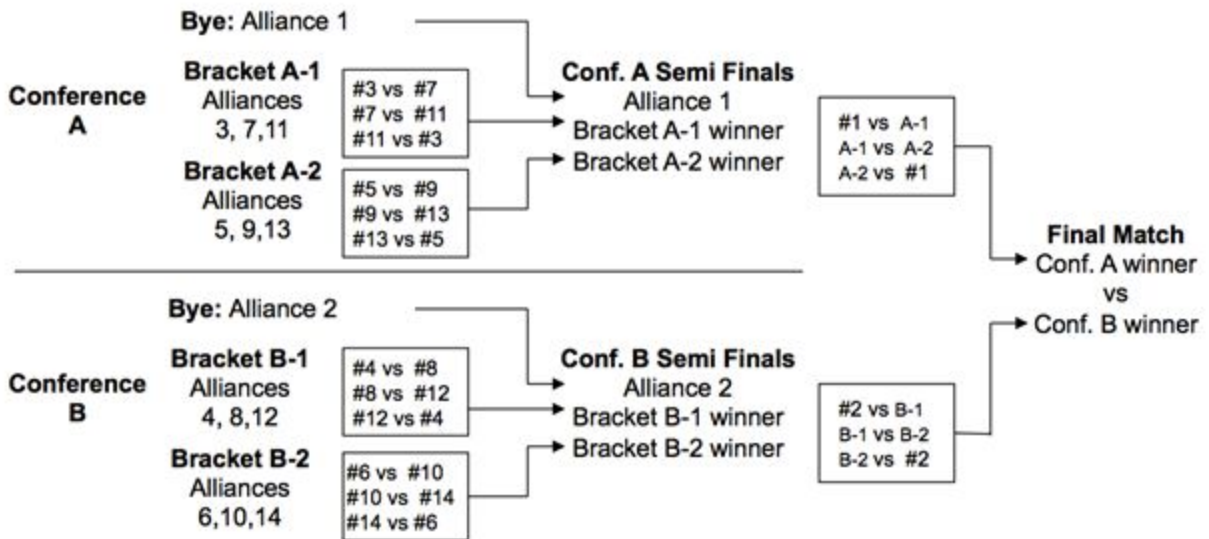
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30Vj g'cnkpeg'y kj 'yj g'o quv'y kpu'cf xcpegu'40K'cnkpegu'ctg'vkgf 'hqt'y kpu.'yj g'cnkpeg'y kj 'yj g'j ki j guv' qvcl'ueqtg'cf xcpegu'50K'ueqtgu'ctg'vkgf.'uko wrcvqp'tguwnu'y kn'dg'vugf 'vq'dtgcml'yj g'vkg'Vj g'ugo kkpcl' o cvej 'dgy ggp'yj g'vqr '4'dtcengv'y kppgtu'cpf 'yj g'od{ go'vgo 'y kn'cnuq'dg'r r{ gf 'lp'tqwpf/tqdkp'uv{rg0'Vj g' y kppgt'qh'yj ku'o cvej 'ku'f gvgtto kpgf 'lp'yj g'uco g'y c{ 'cu'yj g'dtcengv'y kppgtu<

30Vj g'vqr '4'cnkpegu'y kj 'yj g'o quv'y kpu'lp'yj gkt'dtcengv.'cf xcpeg'40K'yj gtg'ku'c'vkg'hqt'y kpu.'yj g' cnkpeg'u'y kj 'yj g'j ki j guv'qvcl'ueqtg'lp'yj gkt'dtcengv'cf xcpeg'50K'ueqtgu'ctg'vkgf.'uko wrcvqp'tguwnu'y kn' dg'vugf 'vq'dtgcml'yj g'vkg'Vj g'y kppkpi 'cnkpeg'itqo 'gcej 'eqphgtgpeg'y kn'r r{ 'c'ukpi ng'o cvej 'vq'f gvgtto kpg' yj g' gtq'Tqdkvku'KUUEj co r kq0'Vj g'hqkpi 'cnkpeg'y kn'dg'cy ctf gf '4pf'r rvego'

Hki wtg'32'<KUUEqo r gvklqp'Dtcengv'

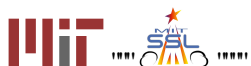


Definition: Successful Match

- Both satellites move correctly to initial positions
- Both satellites have normal motion throughout the test
- Both satellites return a valid score
- Neither satellite expends its CO₂ tank during a test run

Definition: Simulated Match

In advance of the competition, the ZR Team will run a simulated round robin competition between all participating teams. The results from matches in this competition will be used in place of ISS tests if necessary (see below.) The results of a simulated match will only be announced if they are used in the live competition.



SPACE-SPHERES; Ua Y'A Ubi U''

40G"Ueqlkpi "O cvej gu"

Ueqltgu'lp'yj g'ueqlkpi "o cvej gu'y km'dg'f gvgto kpgf "ceeqlt kpi 'vq'yj gug'twgu<

Case 1:"UweeguuhwiO cvej . 'Dqyj "Ucvgmkgu" Tgwtp "Wpks wg' Ueqlt g" *g0 0352. "373+"

E'Vj g'ueqlt gu'y km'dg'tgeqlt gf "cu'yj g'qh'k'k'c'ueqlt g'ht' 'y' g'o cvej 0'

Case 2:"Gkj gt "Ucvgmkg" Tgwtpu'cp "kpxcrkf "Ueqlt g" *g0 0352. "477+"

E'K'ij g'htu'v'wp'qh'c'o cvej "ku'pqv'uweeguuhwn 'y' g'o cvej 'y km'dg'tgtwp. 'vko g'r gto k'kpi 0'

E'K'ij g'ugeqpf 'twp'qh'c'o cvej "ku'pqv'uweeguuhwn 'y' g'tguwmu'htqo "c'uko wrcvf "o cvej 'y km'dg'wugf 0'

40 "Xkt wcnHkpcn'Uko wrcvqp'Ego r gvkkqp"

Cm'vgco u'r ctv'ekr cvkpi 'lp'yj g'5F "ego r gvkkqp'yj cv'f q'pqv'cf xcpeg'vq'yj g'Ugo k'Hkpcn'eqo r gvkkqp "Cnkpeg" Rj cug+'cpf "cm'vgco u'r ctv'ekr cvkpi 'lp'yj g'Ugo k'Hkpcn'Eqo r gvkkqp'yj cv'f q'pqv'cf xcpeg'vq' KU'Hkpcn'y km'dg' kpxk'gf "vq'r ctv'ekr cvg'lp'yj g'Xkt wcnHkpcn'0'

Vj g'Xkt wcnHkpcn'i co g'y km'dg'kf gpv'k'c'v'q'yj g'Ugo k'Hkpcn'eqo r gvkkqp "Cnkpeg" Rj cug+'i co g'0Vgco u' r ctv'ekr cvkpi 'lp'yj g'Xkt wcnHkpcn'y km'u'wdo k'v'q'c "Xkt wcnHkpcn'Ngcf gtdqctf 0'

Vgco u'o c'f "ej qqug'vq'r ctv'ekr cvg'lp'yj g'Xkt wcnHkpcn'cu'lpf k'k'f wcn'vgco u'qt'cu'cnkpegu'0Vgco u'yj cv'f k'f " pqv'r ctv'ekr cvg'lp'yj g'qtki k'pcn'cnkpeg'htqo cvkqp'g'xgpv'ctg'y g'raeo g'vq'etgcv'cnkpegu 'k'h'f gult gf 0' J qy g'xgt. "qpeg'c'vgco k'cnkpeg'uwdo ku'eqf g'vq'yj g'Xkt wcnHkpcn'Ngcf gtdqctf "y' g'vgco k'cnkpeg" eqo r qukkqp"ecppqv'dg'ej cpi gf 0'

Qpeg'yj g'Xkt wcnHkpcn'Ngcf gtdqctf "em'ugu. 'y' g'vq'r 't'cpngf "4'vgco ul'cnkpegu'y km'cf xcpeg'vq'yj g' Ej co r k'p'uj k' "O cvej "qh'yj g'Xkt wcnHkpcn'0'Vko g'r gto k'kpi . 'y' g'hkpcn'Ej co r k'p'uj k' "O cvej "qh'yj g' Xkt wcnHkpcn'eqo r gvkkqp'y km'dg'eqo r g'v'f "cdqctf "KU'f wtkpi 'y' g'KU'Hkpcn'0'

50Ugcuqp "T wngu"

50B "Vqwt pco gpv' T wngu"

Cm'r ctv'ekr cpw'lp'yj g' gtq "T qdq'v'eu" J ki j "Uej qqn'Vqwt pco gpv'4238"o wu'cdkf g'd' { 'y' gug'vqwt pco gpv' twgu'<

"Vj g' gtq "T qdq'v'eu"vgco "O K'" "T Cwt qtc l' KNE" + 'ecp' wug' tgr tqf weg'lr wdr'kuj 'cp { 'uwdo kwgf "eqf g'0'

"k'p'yj g'g'xgpv'qh'c' "eqpvtcf levkqp" dgwy ggp'yj g'lpv'gpv'qh'yj g'i co g'cpf 'y' g'dgj c'xkqt'qh'yj g'i co g. "O K'" y km'ent'kh' 'y' g'twng'cpf "ej cpi g'yj g'o cpwcn'qt'eqf g'ceeqlt kpi n' "vq'h'ggr 'y' g'lpv'gpv'0'

"Vgco u'ctg'g'zr gev'f "vq'tgr qt v'cm'dwi u'cu'uq'qp'cu'yj g' "ctg'ht'wpf 0'

"C'odwi o'ku'f gh'k'p'f "cu'c' "eqpvtcf levkqp" dgwy ggp'yj g'lpv'gpv'qh'yj g'i co g'cpf "dgj c'xkqt'qh'yj g'i co g'0'

"Vj g'lpv'gpv'qh'yj g'i co g'uj cm'qxg'ttk'f g'yj g'dgj c'xkqt'qh'cp { 'dwi u'wr "vq'eqf g'ht'ggj g'0'

"Vgco u'uj q'w'f "tgr qt v'dwi u'yj tqwi j 'y' g'q'p'rk'p'g'uw' r qt v'v'q'qnu'0' T' t'gugt'xgu'yj g't'ki j v'q'r quv'cp { 'dwi "

SPACE-SPHERES; Ua Y'A Ubi U''

tgr qtvu'v'j g'r wdne'hqtwo u*H'pgeguuct{.\ T'y knly qtmly kj 'vj g'uwdo kwkpi 'vgco 'v'gpuwtg'vj cv'pq'vgco "

"Eqf g'cpf 'o cpwcn'htggj g'y knidg'lp'ghgevs'f c{ u'dghqtg'vj g'uwdo kwkqp'f gcf rkp'g'qh'c'eqo r gwkkqp0'

"Y kj kp'vj g'eqf g'htggj g'r g'kqf 'vj g'eqf g'uj cmlqxttkf g'cmlyj gt'o cvgtkcu.'kpenw'kpi 'vj g'o cpwcn'cpf "

"Vj gtg'y knidg'pq'dwi 'hkzgu'f wt'kpi 'vj g'eqf g'htggj g'r g'kqf 0Cm'dwi 'hkzgu'o wuv'cng'r nreg'dghqtg'vj g' "

"I co g'ej cmgpi g'cf f'kkapu'cpf "cppqwpego gpv'qh'VDC'xcmwu'lp'vj g'i co g'o cpwcn'o c{ "dg'dcuqf "qp" rguuqpu'rgctpgf 'htqo 'gctnkt'r ctwa'qh'vj g'vqwt'pco gpv0'

504'Gyj keu'Eqf g"

dVj g\ T'vgco 'y knly qtmf'kki gpv'w'w'qp'tgr qt'v'qh'cp{ 'wpgj kecn'ukwcvkqp.'qp'c'ecug'd{ 'ecug'dcuku0'

dVgco u'ctg'utqpi n' "gpeqwtci gf 'v'g'qt'v'dwi u'cu'uqq'cu'vj g{ 'ctg'hqwpf =kpvgv'kqpcn'cdwug'qh'cp" wptgr qt'v'g' dwi 'o c{ "dg'eqpukf gt'gf 'cu'wpgj kecn'dgj cxkqt0'

dVgco u'uj cml'pqv'kpvgv'kqpcn' 'o c'pk'w'v'vj g'ueqt'kpi 'o gj'qf u'v'ej cpi g'tc'pn'kpi u0'

dVgco u'uj cml'pqv'cwgo r v'v'q'i c'kp'ceeguu'v'g'ut'k'v'g'f \ T'k'p'ht'o c'k'qp0'

dY g'gpeqwtci g'vj g'wug'qh'r wdne'hqtwo u'cpf "cmqy 'vj g'wug'qh'r tk'cv'g'o gj'qf u'ht'eqo o w'p'lec'k'qp0'

dXwi ct'qt'q'lh'g'puk'g'n'cpi wci g.'j' ct'cuo gpv'qh'v'vj gt'w'ugtu.'cpf 'kpvgv'kqpcn'cppq{ c'pegu'ctg'pqv'r gto kwgf "

dEqf g'uwdo kwgf 'v'c'eqo r gwkkqp'o wuv'dg'y tk'w'gp'q'pn' 'd{ 'uwf'gp'u0'

dRn{ gtu'o c{ "pqv'ceeguu'vj g'ko r ngo gp'w'k'qp'kp'w'c'peg'qh'vj g'i co g'qt'o qf kh{ "cp{ "xct'kcd'gu'qh'vj g'qdl'geu0' k'p'r ct'k'w'rt.'vj g'cr'k'cpf 'i co g'qdl'geu'uj q'w'f 'pqv'dg'f w'k'ec'v'g'f'qt'o qf k'k'g'f'k'p'cp{ 'ecr'cek'f 0'

dUko w'w'k'qp't'gs'w'gu'u'o c{ "q'pn' 'dg'f'q'pg'o cp'w'cm' 'xlc'vj g'y gdu'k'g'k'p'v'g't'heg.'CRK'ec'm'u'ht' 'uko w'w'k'qp'ct'g" pqv'cmqy gf *gx'gp'k'h'f'q'cd'rg+0'

60Tgxkukqp"J kuvqt { "

"

Tgxkukqp"P wo dgt"	F cvg"	Ej cpi gu"O cf g"
300"	32"Ugr v04238"	Tgrgcug"Xgtukqp"
300"	33"Ugr v04238"	Eqttgcvkqpu"vq'hkz<hki wtg"czgu."kgo "pwo dgtu."cpf "hwpevkqp"J cu" Kgo *+0'
300"	36"Ugr v04238"	Eqttgcvkqpu"vq'hkz<kgo "y gli j v"cpf "ceegrgtcvkqpu."cpf "hki wtgu" z.{ "eqqtf lpcvgu0'
400"	23"Qex04238"	Wf f cvgu"b cpwcnly kj "5F "i co g"ej cpi gu"
400"	26"Qex04238"	Eqttgcvkqpu"vq'hkz<eqphrkvpi "r cuuci g"cdqw'cuugo dnf qpgu." cff "f gvckn'cdqw'i co gff tqr Kgo *+hwpevkqp0'
500"FTCHV"	28"Pqx04238"	Wf f cvgu"b cpwcnly kj "Cnkpeg"i co g"ej cpi gu"
500"	33"Pqx"4238"	Cff u'pgy "i co g'hwpevkqp"cpf "cff kkpnci'cnkpeg"i co g'f gvckn"
500"	37"Pqx"4238"	Cff u'kphqto cvkqp"cdqw/URI GTGU"fqenlpi "hceg"cpf "kgo " f lo gpukqpu"

" "